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THE COTTAGE GARDENER,
COUNTRY GENTLEMAN'S COMPANION,
AND
POULTRY CHRONICLE.

A JOURNAL OF HORTICULTURE, RURAL AND DOMESTIC ECONOMY, BOTANY,
AND NATURAL HISTORY.

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TO OUR READERS.

ONCE upon a time, so classics tell us, there was a very strong fellow named ANTEUS, a son of the earth and the water. So great was his strength, that a temple could be built of the skulls of those whom he had overcome in wrestling; characteristics which induce the belief that THE COTTAGE GARDENER of those days was symbolised under that name.

ANTEUS could never be overcome so long as he clung to his mother Earth—the soil; and that's just the case now with THE COTTAGE GARDENER: and, let us add, we mean to cling to our mother as the source of *our* strength. As a proof of this resolution we may appeal to the pages of the volume of which this is the Preface, for we know from the best and most impartial judges that it is worthy of taking a place by the side of its twenty-one predecessors. Nor could it well be otherwise; for almost the entire of its pages are filled from the stores of the best-skilled authorities on the themes about which they write. This is effectual evidence that we cling to the source of our strength—the earth which the spades of our readers delve, over which their poultry range, and from the flowers of which their bees gather honey.

For the future we have prepared still further evidences of our clinging as strongly as ever to the source of our strength: the hands of fresh Spadesmen, of fresh masters of the Poultry-yard and the Apiary, and of fresh students of Nature are added to those other well-known and well-tried hands which give us our hold upon our mother Earth. Truly may we add that that kind parent seems in no mood to part with us, her dutiful offspring, for many are the additional hands she also has put forth to retain us.

Lastly—and it is a very conclusive feature in the symbol. Hercules only could destroy the old COTTAGE GARDENER,—ANTEUS, by tearing him from the earth; and it would require a Hercules to do the same now.

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WEEKLY CALENDAR.

Day of Mnth	Day of Week.	APRIL 5—11, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon R. and S.	Moon's Age.	Clock after Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
5	Tu	<i>Erica Linnaeoides.</i>	30.019—29.704	49—38	E.	—	29 af 5	37 af 6	51 9	2	2 51	95
6	W	<i>Eutaxia pungens.</i>	29.829—29.751	45—37	E.	.09	27 5	38 6	15 11	3	2 34	96
7	Th	PRINCE LEOPOLD BORN, 1853.	29.814—29.505	46—38	E.	.56	25 5	40 6	morn.	4	2 16	97
8	F	<i>Gardouia multiflora.</i>	29.555—29.457	48—34	E.	.46	23 5	41 6	32 0	5	1 59	98
9	S	<i>Gastrolobium speciosum.</i>	29.737—29.699	42—34	E.	.02	20 5	43 6	35 1	6	1 42	99
10	SUN	5TH SUNDAY IN LENT.	29.792—29.726	50—21	E.	—	18 5	45 6	23 2	7	1 26	100
11	M	<i>Grevillea acuminata.</i>	29.988—29.859	59—32	N.E.	—	16 5	46 6	56 2	8	1 9	101

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 56.2° and 35.7°, respectively. The greatest heat, 75°, occurred on the 7th, in 1848; and the lowest cold, 21°, on the 6th, in 1856. During the period 144 days were fine, and on 89 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

THE shifting and repotting of all specimen plants in these houses have been completed, I hope, before this time; but if not, the sooner they are done the better. Keep up a moist atmosphere, sprinkling the plants with tepid water twice or thrice a week; and pay attention to the destruction of insects the moment you can perceive them.

CAMELLIAS.—As the plants go out of bloom, it is advisable to syringe them freely, shutting up early with solar heat, and maintaining a kindly humidity during the time they are making their growth.

FUCHSIAS.—Supply them liberally with water when in full growth, and shade slightly during bright sunshine.

HEATHS.—To be kept free from strong currents of dry air; rambling growth to be stopped.

LILIUMS.—Give them a liberal supply of water, and a top dressing of turfy peat, sand, and well-decomposed cowdung.

NEW HOLLAND PLANTS.—Give such plants as young *Bononias*, *Dillwynias*, *Draeophyllums*, *Eriostemons*, *Leschenaultias*, *Pimelcas*, *Polygalas*, &c., a tolerably-close corner of the house; stop the young growth as it may require it; keep them clean, and repot them when necessary.

PELARGONIUMS.—Tie and stake the larger plants neatly, without loss of time, and shift the smaller ones into larger pots. The roots will feed greedily on oyster-shells, broken very fine at the bottom of the pot. Put in cuttings for flowering in September and October.

STOVE AND ORCHID-HOUSE.

Keep up a sweet, moist atmosphere with a regular circulation of air, using an abundance of water about the floors; and syringe frequently air plants and others suspended. Shut up a solar heat, if possible, of 80° towards three or four o'clock.

ACHIMENES.—Shift them, and also *Gesneras*, and pot others for succession.

BEGONIAS.—When the flowers begin to decline, the plants may be reduced, and potted into smaller pots, and be kept close for some time afterwards. Put in cuttings of them, if not attended to before; and also cuttings of *Eranthemums*, *Euphorbias*, *Gesneras*, *Justicias*, *Linums*, &c.

CLERODENDRONS.—Give them plenty of room and encouragement to grow.

ORCHIDS.—They should have a mild, but regularly moist, atmosphere for a few weeks until they begin to grow; no water to be applied until that period, and then with moderation.

FORCING PIT.

Get in Balsams, Cockscombs, Globe Amaranthuses, and other such plants from the dung-frame, that will be useful for the summer and autumn decoration of the greenhouse and conservatory.

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FORCING-HOUSE.

CHERRIES.—If all the petals have dropped, and the fruit is set, the temperature may be raised to 60° by day and 50° by night, and syringed in the evening three or four times during the week. A sharp look out should be kept for curled leaves, and the grubs that nestle in them destroyed.

FIGS.—If the fruit is swelling off, supply the trees liberally with water; stop the young shoots at the fourth or fifth eye. Temperature, 65° by day and 55° by night.

MELONS.—The supply of air and water must be regulated by the state of the weather and the temperature of the bed. The plants sometimes show one or two fruit at an early period of their growth, which should be picked off, as they would prevent the swelling off of others. The vines, or shoots, after being frequently stopped, and when they have nearly filled the frame, or other allotted space, several fruit should be impregnated at one time. Sow for successional crop.

PEACHES and NECTARINES.—Pinch off laterals, and tie in the shoots as they advance in growth. If green fly makes its appearance, fumigate the house; but if only a few shoots are infested, dip them in tobacco water. When the fruit in the early house is stoned, thin them to the number you wish to retain, and use a pair of scissors, which is better than pulling them off.

PINE APPLES.—The plants should now be making rapid growth, and, therefore, will require a liberal supply of water. Fruiting plants may now be turned out of their pots into prepared beds, selecting those that are not very forward. The fruiting-house may range from 80° to 85° during day, and from 65° to 70° at night. The successions from 75° to 80° by day, and from 65° to 70° at night.

STRAWBERRIES.—When out of bloom, give them a liberal supply of water, syringe freely, and keep down insects by fumigation.

VINES.—If forcing were begun early in December, whether with Vines in pots or established Vines, the colouring process will have now commenced. When such is the case, admit air freely on all favourable opportunities; but avoid draughts, or cutting winds, which frequently cause rust and other imperfections in the bunches. In the later houses, attend to thinning, tying, and stopping laterals. The last house to be closed early in the afternoon. As the buds, in most cases, will be considerably advanced, it is advisable to syringe frequently; to apply plenty of moisture to the floors and paths; and to postpone the application of fire-heat as long as possible.

WILLIAM KEANE.

HYACINTH BEDS—SPRING PLANTS—PROPAGATION OF AUBRETIA PURPUREA.

ALL who speak to me about spring flowers say, there are many old-fashioned kinds up and down the country, which one never sees in a nursery, or in a nursery catalogue. There is no way of getting at them, that I know, except by hunting them out; so, suppose we take a different beat to-day, although the scent may lay across our

path, to use a sporting phrase. I was born with a gun over one shoulder, and a shot-belt over the other; and I have hunted every animal, under the game laws and over them. I hunted other things, too; but I can safely say, that no kind of hunting brings in more real pleasure than the hunting after beautiful flowers; and no kind of them more so than spring flowers.

Last night I was at a chemist's, and saw rows of scented bottles of the "Essence of Spring Flowers." I asked for a smelling, and it was very pleasant; but to hunt out flowers on a cross-scent, means that they are to be used in cross-planting—not in straight rows, or in circles, or in the bedding-out fashion, but entirely for the mixed border.

A garden without a border for mixed flowers is seldom to be met with; but it has now happened, three years running, that some of our country friends mistook our sport, and believed our whole pack was after spring bedding-plants, or such spring flowers as could be planted in that style: whereas, we had a cross-scent every time, for the avowed purpose of adding more interest to the spring mixed borders.

The two best, the two rarest, and the least known spring flowers of this description that have yet been mentioned this spring—are the *Epimedium macranthum* and *Epimedium pinnatum*. The last is mentioned in another page to-day; also, at page 402 of our last volume, where *Epimedium pinnatum* is called *colchicum*. *Pinnatum* is the proper name—that is, the first that was applied. Dr. Fischer, of St. Petersburg, is the author of it, and Sir W. Hooker adopts it in the "Botanical Magazine," where a figure is given of the plant (4456). It was in a collection of cut flowers of *Epimediums*, which was sent from Cheshire, three or four years back, to a Meeting of the Horticultural Society in Regent Street. The genus is of spring flowers; and, as the kinds cross, there is a great chance of really good things from it for the spring borders.

Pinnatum, alias *colchicum*, is so far tender, that cold winds and sharp frosts nip and destroy the blooms, being from some high parts in Persia. It requires an earlier and warmer spring than ours; but there are *Epimediums* hardy enough for the Isle of Sky, and crossing will do the rest. The cross from *pinnatum* by the pollen of *macranthum* is the first step, and the colour of the cross is most beautiful; but we must look to the more dingy kinds to cross with *macranthum*, and with *pinnatum*—the two best of the genus—in order to get a new hardy race; then, by breeding in and in, the beauty of the original parents may easily be imparted by the cross-breeder. *Epimedium pinnatum*, in the meantime, ought to be cultivated extensively for spring decoration in pots in-doors—to be done exactly, or nearly exactly, like the Lily of the Valley; but the roots to be potted in August, and the pots placed under shelter in October; and, after the flowering is over, to return them to the cold-pit till the frost is all but gone; then to plant them out. Also, to have them out in the open air, in a sheltered place, and where a mat could protect them as the flower-stalks are rising.

Macranthum soon fades in water; but *pinnatum* lasted three weeks with me, in a cool room. The flower-scape is ten inches long, and six inches of the length are set with flowers, which are as large and of as bright a yellow as those of *Cheiranthus Marshalli*. The nectarian processes, which are peculiar to this genus, are in the shape of four brown short horns, in the middle of the flower; the same processes in *macranthum* run out into long tails; and, in the new cross, they are of the intermediate length between the two. The mother carried the ground colour. The time the cross held good, in water, was also intermediate between the times both parents lasted. So much for a cross scent.

The next run will bring us to the foot of Mount Ararat and the times of Noah and the flood. What was the best spring flower in those days? The answer must involve a delicate question; and if I must answer it, you will have

to overlook the delicacy of the thing altogether. In olden times *Corbularia* meant the same thing as erinoline means in our own day—that is, a hooped petticoat. The fashion began immediately after the flood; and at first it consisted of a mere fringe between the "body" and the skirt. In successive generations, however, it enlarged step by step, till, at length, it was as long—and somewhat longer than the skirt itself; and when that was first the fashion, the skirt was slashed up from the bottom in five or six parts, in order to show the *corbularia*—the inflated petticoat. Every word of this we can prove from natural facts, which are revealed to us in the Lilies of the field, the bulbous plants of spring flowers; whereof the smallest, and amongst the earliest, are hooped petticoats, as pretty as any of the Rob Roy crinolines of the present day. Any good combination of black and red, in bands or stripes, is called Rob Roy style in the Highlands; those being the only two colours in Rob Roy's tartan. But to say that this is the first time that hooped petticoats appeared in erinoline, and in different colours, on the fairest flowers of the creation, is just to show one's ignorance of that branch of natural history which explains the thing as clear as crystal. It is sheer nonsense to talk and write against an article of dress, at once so ancient and so becoming, and at the same time the most natural that ever was invented since Adam and Eve wore skins: and anyone who could trace the history and biography of the celebrities who wore and upheld the fashion, from the fringe to *Hymenocallis*—the true wedding petticoat—to the slashing of the skirt in *corbularia*, would be doing us more real good than a man who could name all the bulbs in cultivation from memory. The hoop petticoats of *Ajax minor*, *major*, *media*, *pumilla*, and *pusilla* are among the rarest and the most useful of early spring flowers, all single flowers; but there are double kinds of some of them; but I never saw one but the double *minor*, which is extremely rare. In general, they are all scarce. *Minor* single is common enough about here; and no bulb can be more hardy—frost and snow seem to agree with it rather than not. They all bloom in March, and earlier in some seasons; and might be likened to children, as compared with the great bulbocodiums, which are the true hoop petticoats.

The *Narcissus* family, to which the *Corbularias* belong, offers more really good spring flowers than any other; but the names are so confused, that no reliance can be placed on any botanical account of them in all our books. We want a good practical arrangement of them, composed entirely of improved kinds from seeds, drawn up into sections of dwarf plants, medium and tall kinds, early bloomers, middle-season and late kinds. The *Narcissus dubius*, mentioned at page 402 of our last volume, and again to-day, as a "beautiful pot plant, being too dwarf but too early for out-door work," is a garden seedling of *Narcissus papyraceus*, and the very best of the family to force, or come in in January and February without forcing. The wild parents of this kind have only from two to three flowers on a scape; but seedlings from cultivated plants of them, and from judicious crossing, would number from six to twelve or fifteen flowers in one head, all as pure white as the driven snow.

Mr. Cutbush, of Highgate, exhibited thirty kinds of the *Polyanthus Narcissus*, at St. James's Hall, last spring; but they were botanically so numbered, and you might just as well apply botanical discrimination to Fuchsias, Verbenas, and Calceolarias as to *Narcissus*. Out of those thirty kinds of *Narcissus*, one might pick five or six really distinct and good kinds for pot culture.

The *Pheasant-eye Narcissuses* might make a nice group by themselves. *Tripodalis*, *majalis*, and *recurvis* are all pheasant-eyed—that is, with the present fashion of the petticoat developed more or less in the crimson or pale-scarlet ring round the cup. A good cross-breeder might make a fine strain of May-blooming plants from these three, which must be only three variations of one original

kind. Who has the best selection of kinds? and who can teach gardeners the proper way to classify them? I cannot do it; and I do not know a single individual who can. Suppose we all begin, and see what we can muster while they are yet in flower.

In writing about a bed of Hyacinths last week, I forgot to say that *Prince Albert*, being the darkest, ought to stand in the centre of the blues. Suppose a circular bed, and then in it I would put three or five of *Prince Albert* in the centre, then a ring of *General Havelock*, another ring of *William I.*; the rest as they stand in my list. Another way would be, a cluster of five *Prince Albert*, or of *General Havelock*, in the centre; then a ring of *Tour d'Auvergne*, one of the best whites; then the next shade of blue, then *Madame Vander Hoop*, the next best white; after that, the next shade of blue, and the next best white, to the outside. Blue and white alternately, but shading the blue, and keeping the darkest farthest from the eye. Five or seven rows of a ribbon on a long, straight border of these kinds and colours would look well. Another ribbon of four kinds of Hyacinths would be splendid. *Aurora*, a scarlet crimson, at the back; *Miss Burdett Coutts*, a creamy white, next; *General Havelock*, the darkest shade of blue, next; *Prince of Waterloo*, a fine white, or any other approved white; then scarlet again—say *Rutilans*, or *Napoleon III.*, or any bright scarlet, or nearest to it. The creamy white is to stand for pure white; and in the second repetition I would put a creamy yellow, *Koning Von Holland*, in place of *Miss Burdett Coutts*; and the last blue row next or nearest the walk would be of *Argus*, the finest thing of the kind that ever was introduced. It is a single bell, and has a white inside, or eye.

There is no novelty about having whole beds of Hyacinths out in the garden; but nothing is yet in print, as far as I know, as to how to plant the kinds to give the colours according to the taste and judgment of the age. But any lady, or gardener, who has had practice in this style, could make ten or twelve kinds of arrangements from my list made at Mr. Cutbush's. But I ought to tell the reason why I am so particular on the point.

Some years since I received instructions to have two large, oblong match beds in front of the conservatory at Shrubland Park, filled with Hyacinths next spring. It was then near the end of November; and I was in a great taking, being so late, for two reasons;—the best kinds might have been sold out by that time, and it was six or seven weeks later than I thought desirable; therefore, I wrote to Mr. Carter, of High Holborn, for about four hundred roots of the common cheap kinds; but he had sold out all that were common, and sent me the very best kinds. Well, I took his catalogue to see what I could make out to help in planting them; but I was so bothered with this being a single, and that a double red or white, that it would take me a week to get out of the confusion; but good planting was then the exception all over England, and I dare not put in a word against the nonsensical way of having each colour in single and double lists, as if that could make any difference to the effect of colours. I planted them in about a third-rate style, and they bloomed very finely indeed. It was a fine April, the place was high and dry, and many people saw them. Although I could not plant the colours better, and although the style or effect was not above third-rate, I must confess that, from that April to this, I have not seen a Hyacinth-bed one half so good as that. So I know where the shoe pinches; and I shall be obliged to any lady who will furnish me with the names of any new or old Hyacinths that she may bloom this spring, and which appear to be as good as those I named, but of a different shade.

What plant for the flower-borders cannot be propagated in the spring with profit? *Aubretia purpurea*, most certainly. People do admire it so much in such profusion round the Tulip vases at the Experimental, that the constant cry is, "How did you get such quantities of it?" That is, however, but a common exclamation;

and the thing itself—I mean the *purpurea*—is so common hereabouts, that I seldom take notice of what is said. But, the other day, a really good gardener told me he could never manage to get a stock of it; and the answer I made him was, "I shall tell you the reason why in *THE COTTAGE GARDENER*." Well, it will not strike by the ordinary means; and if it did, the temptation to spoil a bed of it in bloom might be too much for those who want it. The middle of May is about the time it has done flowering; and in large masses no flower is more effective in that tint—a light blueish-lilac. After flowering, it may be said to stop growth, like a bulb, till the autumnal rains and long nights set it in motion; and it is from September to February that it makes its annual growth. Then, from the middle or end of October till Christmas is the lawful time to have it from cuttings of the young wood, before the flower-buds are formed. But thousands have no stoves, or propagating-houses, for that work in winter. The Experimental is one of that number, and necessity was the mother of invention there. At first "it would not strike no how;" and at last every morsel of it rooted as freely as a *Punch* Geranium. As soon as it is out of bloom, the old flowering shoots are put in for cuttings, just like Pink pipings, only that they are put in pots, the pots plunged in a cold, shaded border, with a hand-glass over them; and they take a long time to strike, but never fail to do so; but in heat, or any of the propagating-department ways, you might just as well try cuttings of the Scotch Fir. It ought to be called the *Lilac Chain*, to encircle beds, baskets, or vases, and to make an outside fringe for ribbons.

D. BEATON.

SOME HINTS FOR MANAGING A LATE VINERY.

"I have a small vinery where the Vines are now beginning to swell their buds. The house is heated, in the old-fashioned way, by a *flue*. Shall I commence by lighting the fire in the evening, or in the morning? Some of my neighbours say, 'Light the fire in the morning, and give heat with light and air, allowing the fire gradually to die out in the evening.' Others say, 'Light the fire in the evening, and make it up for the night.'

"What temperature is required by day, or what by night? And please to tell me if the border should be covered with fermenting manure at *this season*? The Vines are planted outside. Should the Vines be syringed, or any kind of moisture kept up *after* the fruit begins to colour? Is it best to keep *fire* heat until the fruit is ripe, or to leave off fires after the fruit is stoned, and allow the Grapes to swell and colour without artificial heat?"—
A SUBSCRIBER TO THE COTTAGE GARDENER, *North Riding of Yorkshire*.

WE should like to answer your questions definitely; but very likely, if we did so, we should only mislead you. So much of the correct in practice depends upon circumstances, that if these are not taken into consideration, mere definite rules will be of little benefit. Many beginners are thus led into error by following the advice of one clever man to-day, and a somewhat contrary advice, but equally suitable to other circumstances, to-morrow. Hence the worker, by more routine, will often get into errors, from which the man who regulates his practice by circumstances will be comparatively freed. If we can make this sufficiently plain, then you will get hold of a principle of action that will enable you to suit your operations to your circumstances, and the objects you have in view.

Thus, the first question you wished solved, as to firing in the morning, or at night, should, properly, be preceded by another, namely:—"Is there any necessity, except in extra cold weather, for having any firing at all just now?" The answer to this must depend upon whether you wish to have your Grapes in the first, or the last,

months of autumn. If the former, then it will be advisable to assist your Vines with heat now, and to give that heat whenever it is necessary, until the fruit is perfected, and the wood is ripened. But, in the latter case, and with Vines just breaking their buds in the beginning of April, or the last days of March, and the great object is a good late crop, procured with the greatest economy as respects fuel and attendance, then we would do what we could to keep the Vines back for two or three weeks, instead of accelerating their progress. This could easily be done, by keeping them cool, by means of plenty of air on, night and day, unless when the weather was cold and inclined to be frosty. The buds, or rather young shoots, would thus lengthen very slowly, but come stubby and strong. Until they are from three to four inches long, and showing the fruit boldly, they will not take any harm in a lowish temperature—say from 40° to 45°, and 50° at night, and a rise of from 5° to 10° and 15° from sunshine. Vines thus treated will be more hardy than those coddled with fire heat; and they will be safe enough, if at that early period the thermometer should, for short intervals, even get a little below 40°. The advantage of this keeping back, instead of forwarding, chiefly is, that you get the natural heat of the season to do for your Vines what fire heat must do, if you commence earlier; and the powerful sun of May and June would give as much heat as you required, even when the Vines were in bloom. When Vines are thus left, as it were, chiefly to themselves, they will want little assistance from the furnace, except when they are in bloom and setting, in very cold nights and in continued very cold, dull, damp days; and then, again, to dry the atmosphere in the house in the autumn, so as to prevent damping.

But we presume you are anxious to give your Vines a help; and, therefore, in answer to your second question, as to temperature, we would advise you, likewise, to regulate that according to circumstances. Supposing the buds are nicely broken, we would keep the house, in a fine night, at 55°; in a cold night, from 50° to 55°. If the next day were sunny, we would give a little air early, and let the house rise from 65° to 75°. If the day were cold and stormy, we should be satisfied if the house rose from 55° to 60°. By the time the shoots were from two to three inches long, we would gradually raise the night temperature from 55° to 60°. When the shoots grow on, and the bunches showed freely, we would make 60° the average. As the bunches lengthened, we would increase to 65°; and just as they began to open the first flowers, we would increase again, gradually, from 65° to 70°, for all common Vines: if *Muscats*, we should not object to a few degrees more. As soon as the berries were fairly set, and growing freely, and the blooming all over, we like the house to become gradually cooler again; getting back to 65° and 60°, at night, as our average. It will thus be seen, that we like the highest temperature at night when the Vines are in bloom. Now, these figures are mentioned as a guide; but in a very warm night we should not mind a few degrees more; and in a very cold night we should rather have the house fall 5°, in preference to making very strong firs. No check should be given by sudden great depressions, or even very high temperatures, until the fruit is ripe. In all these changes, early air-giving is important. If coals are no object, a little may be left on all night. The temperature, even in cold dull weather, should always be a little higher during the day than it is at night. In a period of dull weather, the temperature at night should be below rather than above the average. Caution should be taken not to lengthen the shoots, by extra heat, when growth cannot be consolidated by light. Hence, again, air being given early to prevent the accumulation of heated moist air near the top of the house, a gradual raising of the temperature by sun heat, from 5° to 10°, 15°, and even 20°, will be beneficial rather than otherwise. We prefer, also, shutting in a part of that heat early in the afternoon, instead of leaving the sashes

long open, and using extra fuel instead. Of course, when the house would not fall much below 60° at night, after the fruit was swelling, we would use no fire then at all.

This brings us to your first query:—"Shall I commence by lighting the fire in the morning, or in the evening?" Some neighbours say, 'Light the fire in the morning, and give heat with light and air, allowing the fire to die out in the evening.' Others say, 'Light the fire in the evening, and make up for the night.' From what has been adduced, we need not say much upon this, though it tends to confuse many beginners. The friends who advise you to light a fire in the morning as the rule of action, have, no doubt, got their minds convinced of one principle—namely, that heat should be given in proportion to light. You will observe, that that is kept in view in speaking of the average temperatures in the last paragraph. The best principle, like a good horse, may easily be over-ridden. Just let us test the rule by the circumstances of the case.

By the time this comes to your hands, your Vine-buds will be an inch or more in length. April may have its clouds and its storms; but it also, generally, has its gentle zephyrs and a fair amount of sunshine. The nights, on the whole, are generally colder than the days, and give a retarding influence to what the sun the day before might have unduly excited. You get out in the morning, and perceive that, in a couple of hours or so, the sun-heat alone will raise your vinery as high in temperature as you could wish, even with plenty of air on. What would be the use, then, of lighting a fire to throw heat into your flue, when the sun would so economically give you more than you can appropriate? Continue this firing process for a week or so, and your shoots will lengthen and become more tender. A clear night comes—it is wrong in principle to put a fire on at night—and before morning the tender points of the shoots with embryo fruit are blackened and destroyed! Without this extra roasting during the day, the shoots might have been safe; because they would have been hardier, and also less forward. As a general rule, then, in the month of April, we would say, that a fire in such a vinery is more useful in the evening than in the morning, if so used that the night temperature is always considerably below the day temperature. This just prevents anything like stagnation or danger. Generally, in April and May, the nights are much colder than the days; and the incipient branches are easily chilled, when well treated during the day. Circumstances, however, must regulate the rule. Here is an evening, after a sunny day, in which the outside thermometer is only a little lower than we wish our houses to be; then little or no firing should be used. Here is another evening, stormy, and likely to be keen and frosty; common prudence says, "Put fire on." Again: there is a beautiful sunshiny morning, the house is already high enough; the sun is likely to shine the most of the day—why should we willingly add to the heat of his beams? But there is a morning cold, and cloudy, and stormy, and the house is quite low enough, and likely to get lower, and there is little or no chance of sunshine; and the same prudence and common sense say, "Light a moderate fire; and even if the sun should come out in the after part of the day, you can only be enabled to give a little more air."

Keeping such circumstances in view, then, we must say, that for assisting a late vinery in April, the fires should generally be applied in the evening rather than the morning; but circumstances must decide. In such a vinery, there is one time when any fire used should be given in the morning. In the autumn, when the fruit are ripe, and you wish to prevent damping, use a little fire in the morning, and air on all the time, and let the fire be reduced before the house is shut up. It is best then to give a little air, even at night; as, if the air is confined, the smallest extra heat will tend to throw moisture up into it. As respects the other inquiries—

1st. There will be no necessity for covering the border with anything, though, the later the Grapes, the more will roots and branches act in unison. If the stems of the Vines, however, are exposed, it would be as well to cover or protect them—the stems.

2nd. The Vines should not be syringed after the fruit begin to colour; and the atmosphere then should be kept drier, to secure good flavour. We generally syringe until the Vines begin to show bloom. We then keep the house fair, as respects atmospheric moisture, and give one good syringing after the fruit is fairly set; and then give no more, as we cannot depend on the purity of our water.

The giving fire heat until the fruit is ripe, will depend, as you have seen, on circumstances. When Vines are used to firing, a sudden deprivation of heat will give a check. But, during stoning and ripening, I would prefer the temperature, night and morning, to average about 60°, and would rather see the thermometer a few degrees below that, than above 65°. Provided air were given early—say by the time the house got a little above 70°, I should not be disturbed if the glass rose fully to 85°, or more, by sun heat. The weather out of doors—as that effects your heat within—must be more studied by you than any mere dictum as to giving no fire heat after the fruit had been stoned. In some seasons, fire might be dispensed with altogether before then, in a late vinery. In others, the want of a fire, even for a day or two, in peculiar weather, might be attended with unpleasant results.

Something will be gained, if you are convinced that your Vines are living existences, influenced by every atmospheric and other change, and that these changes, coupled with observation and thought, must form the groundwork of successful practice. All mere definite rules, such as might apply to a piece of mechanism, however good in themselves, will lead to disappointment, unless regulated by the circumstances of the case. The necessity of thought is alike a source of pleasure and of trouble in gardening. Rules, however good as to hours and times, cannot be carried out like the regular winding up of a watch or clock. The worker must think.

R. FISII.

HARDY VARIEGATED PLANTS.

SEVERAL correspondents have written for a list of hardy variegated plants, our "OLD SUBSCRIBER" amongst the rest. I have searched through many catalogues, nurseries and gardens; and the result of my pleasant labours I have now the pleasure of recording. As I value highly the grouping of plants in classes, I think a space in the garden might be usefully devoted to this class, more especially the herbaceous kinds—the list of which will, I expect, fill my space for this number.

HERBACEOUS VARIEGATED PLANTS.

Acorus calamus variegatus, *A. gramineus variegatus*. Hardy marsh perennials, requiring a moist soil.

Ajuga rubra variegata, *A. reptans variegata*. Common dry garden soil.

Alyssum Alpinum variegatum, *A. maritimum variegatum*, *A. saxatile variegatum*. Ornamental rock plants.

Alyssum orientale variegatum—the sweet Alyssum. Requires to be propagated by cuttings to preserve the variegation.

Apium graveolens variegata. Border in common soil.

Arabis Alpina and variegata, *A. lucida variegata*, *A. mollis variegata*. Rock plants, but will grow well in a border or in pots.

Arum dracontium, spotted stalks. *A. pictum*, blotched leaves. *A. zebrinum*, striped leaves, beautiful and rare.

Arundo donax variegata. A large-growing reed, reaching fifteen feet high in good dry soil, leaves beautifully striped.

Barbarea vulgaris variegata. Finely margined, a hardy perennial requiring dry soil.

Bellis perennis variegata. A double Daisy, with leaves densely blotched with pale yellow.

Calamintha grandiflora variegata. A handsome, variegated, beautiful Mint, very hardy, will grow in any dry soil.

Colchicum autumnale variegatum. Flowers in autumn, but the leaves come up in early spring, and are finely striped with yellowish white.

Comarum palustre variegatum. Requires a moist soil.

Convallaria majalis variegata. The common Lily of the Valley, with striped foliage.

Epilobium hirsutum variegatum. A tall willow herb, reaching four feet high, foliage well marked with white.

Equisetum variegatum. A curiously-barred plant found on the sea-shore in Scotland: requires sandy loam and a moist situation.

Euphorbia amygdaloides variegata. I have seen this grown in lime rubbish and loam, most beautifully striped, having then the appearance of rosettes made of white and green ribbon.

Farfugium grande. A large-leaved variegated Coltsfoot from China, but quite hardy. It has been hitherto, on account of its scarceness, kept in a stove or greenhouse: requires a light, rich soil, in a warm, sheltered border.

Fragaria vesca variegata—the striped Strawberry. Should be grown in poor sandy soil, or it will lose its variegation.

Funkia lanceifolia, *F. ovata*, *F. undulata*. Strong-growing perennials, with finely-variegated leaves: require rich, light soil, and a dry subsoil.

Glechoma hederacea variegata—the striped ground Ivy. Suitable for covering naked banks.

Hemerocallis flava variegata. A fine, broad-leaved, herbaceous perennial, distinctly striped with yellowish-white: requires a deep, dry, rich loam.

Iris fatidissima variegata. Striped like a ribbon, handsome and very hardy: common soil.

Iris pseudo-acorus variegatus—the common Flag, with leaves striped with yellow: requires a moist, peaty soil.

Koniga maritima variegata, syn. *Alyssum Glyce* and *Adysetum*. It is an annual, and therefore, must be propagated by cutting to preserve the variegation.

Lilium candidum variegatum—the common white Lily, with striped leaves. I once saw a bed of this fine variegated plant in a nursery near Doncaster, and was much struck with its beauty: requires a rich, dry, loamy soil.

Linaria cymbalaria variegata. Suitable for old walls or rock-work. It is prettily variegated with white.

Melissa officinalis variegata—common Balm, with gold-striped leaves: light, common garden soil on a dry bottom.

Melissa secunda variegata. A side-flowering Balm of great beauty: requires the same treatment as the preceding.

Mentha rotundifolia variegata—striped Mint. Makes a good bed by itself, or an edging for tall-growing bedding plants: any good soil suits.

Phlox decussata variegata. A distinctly variegated Phlox of great beauty: requires a rich, dry, loamy soil, in an open situation.

Plantago lanceolata variegata. Finely striped with yellowish-white: requires a dry border and rather poor soil, or it will lose its stripes.

Polemonium caeruleum variegatum. This is a very beautiful plant, finely margined with pure white: requires a light sandy soil on a dry, warm border.

Primula marginata. The foliage of this pretty little Primrose is delicately edged with white: requires sandy peat, and a slight protection in winter.

Rumex sanguinea. This is a Dock, with dark, purplish-red leaves, very conspicuous amongst other plants: requires a rich, cool soil.

Scrophularia mellifera variegata. A tall-growing hardy herbaceous plant, with leaves variegated: will grow in almost any soil.

Spiraea ulmaria variegata—the common Meadow-Sweet, with its leaves blotched with yellow: requires a moist soil, not over-rich.

Veronica Austriaca variegata, *V. chamadrys variegata*. Herbaceous plants, requiring common culture.

Yucca filamentosa variegata—the striped-threaded Adam's Needle. Very beautiful and rare: requires a rich dry soil in an open situation.

VARIEGATED GRASSES.

Aira cespitosa variegata. Very beautiful.

Dactylis glomerata.

Juncus conglomeratus.

Molinia caerulea variegata. Fine.

T. APPLEBY.

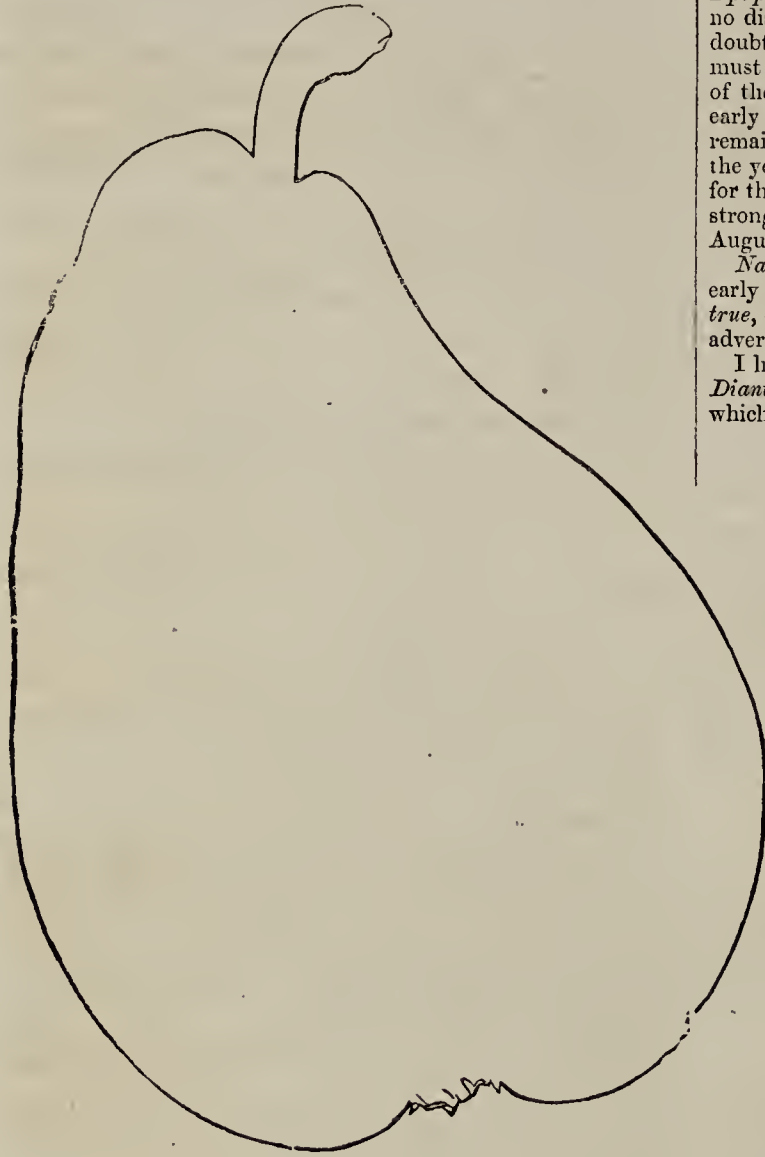
IMPROVING WHITEWASH.—The grounds of a beer-barrel added to quicklime and water will greatly improve it for a wash. Tallow added to, and stirred up with, the lime, when slaking, will render the wash more durable.—K.

FRUITS AND FRUIT TREES OF GREAT BRITAIN.

(Continued from Vol. XXI, page 380.)

No. XVII.—TRIUMPH OF JODOIGNE PEAR.

THIS is a handsome and very excellent pear; but it varies very much in quality. On cold soils, I have invariably found it coarse-fleshed and astringent; but in cases where the fruit has been produced in a warm soil, well fed, and with just sufficient moisture, it has proved buttery, melting and delicious.



Fruit inodorous; large, varying from three inches and a quarter to four inches and a half long, and from two inches and three quarters to three inches and a quarter wide; pyriform, rounded at the head, and tapering to the stalk in a depressed curve, where it forms a stump end.

Skin smooth, lemon-yellow, covered with small russet dots and several patches of pale brown russet. Sometimes mottled with green patches.

Eye open, with incurved awl-shaped segments, which are of a brown colour, and placed in a slight depression.

Stalk an inch to an inch and a quarter long, set on the end of the fruit without depression, and frequently with some fleshy wrinkles at its base.

Flesh yellowish white, tender, buttery, and melting. Juice pretty abundant, with a sugary, piquant, and perfumed flavour.

A dessert pear of the first quality; ripe at the end of November, and continues in use during December.

This forms a middle-sized tree, of a spreading and an awkward habit when grafted on the pear stock; but when worked on the quince, it is kept in better bounds, and is much more manageable. It was raised by M. Simon Bouvier, who sowed the seeds in 1830.

The tree fruited in 1843; in which year, M. Bouvier, in consequence of ill-health, resigned his office as burgomaster of Jodoigne, to which he had been unanimously elected; and, as a compliment to his fellow-townsmen, he named this Pear *Triomphe de Jodoigne*.—H.

EPIMEDIUM PINNATUM, OR COLCHICUM.

YOU will find an account of *Epimedium colchicum* in the "Annals of Horticulture," 1850, page 377, under the title of *Ep. pinnatum*.* It is known by both names—at least, I can see no distinction. It is beautiful when well grown; but I have my doubts about it as a spring bedding plant. In the first place, it must have peat soil. Secondly, it throws up its flowers in advance of the leaves; and frost injures them, as it does the flowers of early Rhododendrons when unprotected. Thirdly, the old leaves remain on the plants, as in the Hepaticas; and, as they protect the young leaves, I do not like to cut them off, as you recommend for the Hepaticas. The full-grown young leaves are lovely, and strong plants will rise eighteen inches or two feet. I recommend August for transplanting.

Narcissus dubius is a beautiful pot plant, being dwarf, but too early for out-door work. I do not know where it can be had true, except at Bass and Brown's, Sudbury. Some catalogues advertise it as synonymous with *N. papyraceus*, but it is not.

I have sent to Messrs. E. G. Henderson a very pretty hybrid *Dianthus*, between *D. fulgens* and the common Pink, about which you may hear something.—A. R.

DOUBLE POLYANTHUSES AND DOUBLE PRIMROSES.

MR. BEATON and your correspondent "MYOSOTIS" have drawn attention to a class of flowers which, from early association, and being the harbingers of coming sunshine with its accompanying renewed vegetable life, possess many charms for the florist and lover of simple beauty. There are several Double Primroses; and I have seen three varieties of Double Polyanthuses, besides seven or eight different semi-double ones. Many years ago, I endeavoured to breed Double Polyanthuses from seed, but only half-accomplished the object by raising semi-double ones; and not only for the reason that we know it has been done, but from my own endeavours, I am confident that a few years of properly-applied knowledge, attention, and fitting means, would produce a race of beautiful Double Polyanthuses. I warmly entertain an opinion, that the standard of perfection of the Polyanthus, as a florists' flower, should be double, with perfectly smooth-edged petals, whether these are regularly "edged," as now in the florist class, or not, and with the flowers round; when they would be little inferior to our best Ranunculuses; except, perhaps, the difficulty of overcoming the irregularity of the centre petals might prevent its full conformability.

In Germany, seed-growing and thus doubling flowers have been greatly effected by rich culture in pots, and selection of plants with indications of a predisposition to produce excess of petals around the corolla, but particularly when the stamens are converted into petals. From my own experience, I have learnt that a bed, made up on the north side of a three-feet high new Quickset hedge, which was not too dense, or tall, to prevent both air and light to permeate, yet, at the same time, afforded shade from the parching sun, produced most flowers from seedlings (which had been raised in light, rich earth, in pans, and then pricked out), partly semi-double, and which, when removed to poorer soil, lost this disposition of their stamens to become petals. I would, therefore, recommend such a border made of stiffish loam, with plenty of old Melon or hotbed manure dug into it; although this class of plants will, with due shade and moisture, not only flower best, but these flowers will, under such circumstances, be much larger than if exposed to too much sun and the wind. Were I to make a renewed attempt, I would have every plant in a pot, so that it might be completely under control; and when the seed was perfecting, it might, if needs be,—as, for instance, if the weather should prove wet and cloudy, so as to unduly promote the growth of leaves,—be removed to a drier and more sunny situation.

* Also in "Botanical Magazine," t. 4456.

Of course, only flowers with six, seven, eight, or more petals, or the stamens transformed into petals, or with any other indication of a predisposition to produce double flowers, should be allowed to remain upon the plant.

I have heard it said, that the Double Primrose, if planted in poor soil, will return to the single state. I have tried, but never could accomplish this; my object was to endeavour to get these double flowers with duly-formed seed-vessels, and pistilum to enable me to impregnate it, and get seed from it. The double varieties are so fully double, that seed-vessel, stamen, and pistilum, are all converted into petals; and thus, failing in these organs, the flowers are so much more enduring than the single ones, in which, as soon as the ovarum is impregnated, the petals are gradually deprived of their nutriment.

Flowers, not "pin-headed," are difficult to cross, as it is a tedious operation to cut out, with seissors, the stamens before the pollen has been scattered. I tried many experiments, some years ago, and found that the whole of the corolla, with the stamens, might be amputated without diminishing the power to perfect seed. But, for the sake of doubling, this cannot be recommended; for, as the stamens grow from the tube of the corolla, no doubt the petals must have some effect to confer. Besides, as the object is to induce the greatest predisposition to multiply both growth and number of petals, these should be given all encouragement, and several of the pips removed, so that the few remaining may have no stint of the requisites for their development.—W. WOOLER, *Geneva House, Darlington*.

A HUMBLE BUT EFFECTUAL PROPAGATING APPARATUS.

A SHORT time ago I was turning over some of your back volumes, and met with a communication from an invalid lady correspondent, giving an account of a cheap propagating apparatus which she could use in her sitting-room, her health preventing her going into the greenhouse. I determined to try the plan, and on consulting with my head gardener (my wife), we soon set to work.

An old baking-tin, about eighteen inches by twelve, was looked up, and filled almost up to the rim with damp sand. In the sand we set our cutting-pans, filled with a nice lot of young Verbena cuttings, which I had preserved in the greenhouse during the winter, and covered over with bell-glasses. We then placed the baking-tin, thus loaded, upon an old caudle-box, with top and bottom removed, and underneath it we set a lamp, consisting of the common floating wick in pale seal oil. I then set two thermometers into the apparatus—one into the wet sand, and the other into the cutting-pan underneath the bell-glass, and soon found the former rise to 110°, and the latter from 66° to 78°. I change the wick three times a day, putting in the last at ten p.m., and filling up with oil, which burns steadily till nine next morning, when I change the wick, add oil, and scrape off any black that may have accumulated.

Now for the result. This was done and set to work on March 16th; and to-day (March 26th), I find that the cuttings have nearly all made beautiful roots, and look remarkably healthy and well.

The cost is hardly 1d. a day, as a pint of seal oil can be bought for 6d., and will last about five days.

I may also add, that after having potted off the cuttings, I put them into a little box with a tin bottom, in damp sand. I find I can obtain a nice steady heat, of about 66°, by placing another lamp at a greater distance from the bottom.—A SUBSCRIBER.

WILD MUSHROOMS IN MARCH.

HAVING from time to time noticed many curious things in THE COTTAGE GARDENER, and Mushrooms in March in the open ground being, I think, very unusual, I beg to say, that, for the last three weeks, I have been gathering them in the meadows here in considerable quantities—some days I have gathered as many as half a gallon (which I did this morning, March 28th), from three to five inches in diameter, equal in flavour to the regular autumn-grown ones. No one, that I have spoken to (not even "the oldest inhabitant"), having ever remembered such an occurrence, I have thought it worth mentioning, should you deem it worth notice. Another curious fact is, they grow at quite

different places than I have ever seen any grow before; having been in the habit of gathering them here for the last twenty years.—G. JENNER, *St. Julian's, Sevenoaks, Kent*.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from Vol. XXI., page 402.)

GRAPES.

CANON HALL MUSCAT.—This differs from its parent, the Muscat of Alexandria, in having better-set and more tapering bunches, and rather larger and longer berries. The vine is of more robust growth, and the flowers have six, and sometimes seven, stamens; but the fruit is not so highly flavoured as Muscat of Alexandria.

CATAWBA (*Arkansas; Catawba Tokay; Lebanon Seedling; Red Murrey; Singleton*).—Bunches medium sized, shouldered. Berries medium sized, round. Skin thick, pale red, becoming a deeper colour as it ripens, and covered with a lilac bloom. Flesh somewhat glutinous, juicy, sweet, and musky. A popular American dessert grape, and used also for wine. It is very productive, and very hardy.

Champion Hamburgh. See *Black Champion*.

CHAPTAL.—Bunches large. Berries large and round, inclining to oval. Skin white. Flesh juicy and sweet. This is a new French grape of excellent quality, well adapted for a cool vinery, when it ripens about the middle of September. The vine is a great bearer, and, according to Mr. Rivers, is well adapted for pot culture.

CHARLESWORTH TOKAY.—This is very much like Muscat of Alexandria. Some consider it quite distinct, but I have as yet failed to observe wherein it differs. If it is distinct, it is not sufficiently so to make two varieties of them.

Chasselas. See *Royal Muscadine*.

Chasselas Blanc. See *Royal Muscadine*.

Chasselas Bleue de Windsor. See *Esperione*.

Chasselas Dorée. See *Royal Muscadine*.

CHASSELAS DUHAMEL.—This is, in all respects, very much like Chasselas Vibert, and was raised in the same batch of seedlings. Mr. Rivers describes it to me as a fine, large, amber-coloured Sweetwater-like sort, which is likely to prove very valuable. He imported it for the first time into this country three or four years ago.

CHASSELAS DE FALLOUX (*Chasselas Rose de Falloux*).—Bunches long and compact. Berries large, round, and somewhat flattened. Skin tough, of a pale yellow colour at first, but gradually changing to a pale red. Flesh firm, juicy, sweet, and refreshing, with a distinct musky flavour. The vine is a great bearer, and well suited for pot culture. The fruit ripens in September in an ordinary vinery.

Chasselas de Fontainebleau. See *Royal Muscadine*.

CHASSELAS MUSQUÉ (*Josling's St. Albans; Muscat Fleur d'Orange; Muscat de Jesus; Muscat Primavis; Pascal Musquée; Tokai Musqué*).—Bunches long, tapering, rather loose, and shouldered. Berries above medium size, round. Skin greenish-white, changing to pale amber when highly ripened, and covered with a delicate white bloom. Flesh firm, rich, sugary, and with a high Muscat flavour. A most delicious grape of first-rate quality. It may be grown either in a cool or warm vinery; but the berries are very liable to crack, unless the vine is growing in a shallow border, and the roots are kept moderately dry when the fruit is ripening. It is rather an early variety, and ripens in a vinery in the beginning of September.

Chasselas de Negrepont. See *Negropont Chasselas*.

Chasselas Panaché. See *Aleppo*.

Chasselas Rose de Falloux. See *Chasselas de Falloux*.

CHASSELAS ROUGE FONCÉ.—This was introduced by

Mr. Rivers, but I have not had an opportunity of seeing it. He describes it to me as "a curious variety of Muscadine, with fruit *always* of a bright red; for no sooner is the germ no bigger than a pin's head, than it changes to red. It is as good as Royal Muscadine when fully ripe, and a great bearer."

CHASSELAS VIBERT.—Bunches long and loose. Berries large and round. Skin thin and transparent, yellowish-white, but when highly ripened of a fine pale amber colour. Flesh tender, juicy, and sweet. This, in the form and size of the bunches and berries, resembles the Prolific Sweetwater; but it is readily distinguished from all the Sweetwaters, to which section it belongs, by the bristly pubescence of its leaves, both above and beneath. Mr. Rivers informs me, that it ripens with him ten or twelve days before the Royal Muscadine; that the vine is hardy and prolific, and well adapted for pot culture. It may be grown in a cool vinery.

Cinq Saous. See *Ætillade*.
CLOTAT (*Parsley-leaved; Raisin d'Autriche; Peter-silien Gutedel*).—Bunches medium sized, not quite so large as those of Royal Muscadine, shouldered and loose. Berries medium sized, round, uneven, with short, thin stalks. Skin thin, greenish-yellow or white, covered with bloom. Flesh tender, sweet, and with the flavour of Royal Muscadine, of which this variety is a mere form, differing in having the leaves very much cut. It ripens in a cool vinery.

Le Cœur. See *Morocco*.
Corinthe Blane. See *White Corinth*.
Corinthe Noir. See *Black Corinth*.

CORNICHON BLANC (*Finger Grape; White Cucumber; Bec d'Oiseau; Teta de Vaca*).—Bunches rather small, round, and loose. Berries very long, sometimes an inch and a half, and narrow; tapering to both ends, and just like very large barberries. Skin thick, green, and covered with white bloom. Flesh firm and sweet. A late-ripening and late-hanging grape of little value, and requires stove heat to ripen it.

Cumberland Lodge. See *Esperione*.
Currant. See *Black Corinth*.
De Candolle. See *Gromier du Cantal*.

DUTCH HAMBURGH (*Wilmot's Hamburg*).—Bunches medium sized, compact, and rarely shouldered. Berries very large, roundish-oblate, uneven and hammered. Skin thick, very black, and covered with a thin bloom. Flesh pretty firm, coarse, and not so highly flavoured as the Black Hamburg. It ripens in an ordinary vinery.

Dutch Sweetwater. See *White Sweetwater*.
Early Black. See *Black Cluster*.

EARLY BLACK MUSCAT (*Muscat Précoce d'Août*).—Mr. Rivers' description of this variety, which I have not seen, is—Berries below medium size, and round. Skin black. Flesh rich and juicy, with a rich Frontignan flavour. The vine is more robust in its habit than the August Muscat, and the fruit ripens against a wall. This is one of the seedlings of the late M. Vibert, of Angers.

(To be continued.)

THE SCIENCE OF GARDENING.

(Continued from Vol. XXI, page 398.)

DIGGING, hoeing, and trenching are employed for facilitating the access of the air to the roots of plants, by rendering the texture of the soil easily permeable, and they are practices requiring a separate consideration.

Very few people ever consider, in detail, the expenditure of labour required from the gardener when digging. It is a labour above most others, calling into exercise the muscles of the human frame; and how great is the amount of this exercise, may be estimated from the following facts :—

In digging a square perch of ground, in spits of the usual dimensions (seven inches by eight inches), the spade has to be thrust in 700 times; and as each spadeful of earth—if the spade penetrates nine inches, as it ought to do—will weigh, on the average, fully seventeen pounds, 11,900 pounds of earth have to be lifted; and the customary pay for doing this is 2½d.!

As there are 160 perches, or rods, in an acre—in digging the latter measure of ground, the garden labourer has to cut out 112,000 spadefuls of earth, weighing in the aggregate 17,000 cwt., or 850 tons; and during the work he moves over a distance of fourteen miles. As the spade weighs between eight and nine pounds, he has to lift, in fact, during the work, half as much more weight than that above specified, or 1,278 tons. An able-bodied labourer can dig ten square perches a-day.

A four-pronged fork, with the prongs twelve inches long, and the whole together forming a head eight inches wide, is a more efficient tool for digging than the common spade. It requires the exertion of less power; breaks up the soil more effectually; and does not clog even when the soil is most wet. It is less costly than the spade; and, when worn, can be relaid at a less expense.

The following table, being the result of the experiments of M. Schubler, exhibits the comparative labour required in digging various soils, and the same soil in various states. Thus, if to penetrate with a spade, when dry, grey pure clay, requires a force represented by 100; then, to penetrate an arable soil in the same state, would require a force equal only to 33, or about one-third: so in a wet state the clay would adhere to the blade of the spade with a force equal to 27 lbs. the square foot; while the arable soil would only adhere to the same surface with the force of 6·4 lbs.

Of the results he obtained, he says, when speaking of the consistence of soil in the moist state, and its attachment, or adhesion, to agricultural implements, "When land is worked in a wet state, we have not only to overcome the cohesiveness of the particles among themselves, but, at the same time, their attachment and adhesion also to the agricultural implements employed. If we wish to subject this property to a comparative trial, we may effect it in the following manner. We fasten large round plates, equal in size, made of iron and wood (as the two materials commonly used for agricultural implements), underneath the scale-pan of a balance, and put weights into the other scale until both are equally balanced; we now bring the plate into exact contact with a moistened earth lying beneath it, and put weights into the other scale-pan until the plate is drawn away from the earth; the amount of such weights corresponds to the degree of adhesion, or to the difficulty of working the earth in its wet state. The degree of this adhesion is often more considerable than would have been expected—an adhesion plate, of three or four square inches, required upwards of two ounces of counter-weight in order to draw it away from the surface of garden mould: in the case of the heavier clays, the weight required was as much as five or six ounces. From the size of the plate employed in this experiment, it is, of course, easy to calculate the amount of adhesion for larger or smaller surfaces.

The "firmness" column in this table indicates the weight required to force into perfectly dry specimens of the earth a little blunt spade "of steel," one-thirty-sixth part of an inch in thickness, and one-third of an inch broad.

Kinds of Earth.	In the Dry State. Firmness, that of Clay being 100.	In the Wet State.	
		Adhesion to Agricultural Implements, on a surface of one square foot; with	
		Iron. 3·8 pounds	Wood. 4·3 pounds
Siliceous sand.....	0	1·1	4·1
Calcareous sand.....	0	1·1	4·1
Fine lime.....	5·0	11·3	15·6
Gypsum powder.....	7·3	10·7	11·8
Humus.....	8·7	8·8	9·4
Magnesia.....	11·5	5·8	7·1
Sandy clay.....	57·3	7·9	8·9
Loamy clay.....	68·8	10·6	11·4
Stiff clay or brick-earth...	83·3	17·2	18·9
Grey pure clay.....	100·0	27·0	29·2
Garden-mould.....	7·6	6·1	7·5
Arable soil.....	33·0	5·8	6·4
Slaty marl.....	22·0	4·9	5·5

—(Journal Royal Agricultural Society, i., 188.)

The preceding observations and facts are applicable to hoeing—an operation beneficial in consequence of its loosening the soil, as much, or more, as by its destroying weeds. Moisture abounds in the atmosphere during the hottest months, and it is absorbed

and retained most abundantly by a soil which is in the most friable state. Professor Schubler found, that 1000 grains of stiff clay absorbed in twenty-four hours only thirty-six grains of moisture from the air; whilst garden mould absorbed in the same time forty-five grains; and fine magnesia seventy-six grains. Then, again, pulverising the soil enables it better to retain the moisture absorbed. This we demonstrated some years since; and the reason is, obviously, because a hard soil becomes heated by the sun's rays much more rapidly than one with a loosened texture. The latter is better permeated by the air, which is one of the worst conductors of heat. We are glad to find our opinions confirmed by so practical and so intelligent a man as Mr. Barnes, gardener to Lady Rolle, at Bicton Gardens, Devonshire. He says (*Gardeners' Magazine*, September, 1843), "I do not agree with those who tell us one good weeding is worth two hoeings, I say, never weed any crop in which a hoe can be got between the plants; not so much for the sake of destroying weeds and vermin, which must necessarily be the case if hoeing be done well, as for increasing the porosity of the soil, to allow the water and air to penetrate freely through it. I am well convinced, by long and close practice, that oftentimes there is more benefit derived by crops from keeping them well hoed, than there is from the manure applied. Weeds, or no weeds, still I keep stirring the soil; well knowing, from practice, the very beneficial effect which it has."

"Raking the surface fine, I have almost wholly dispensed with in every department. By hoeing with judgment and foresight, the surface can be left even, wholesome, and porous; and three hoeings can be accomplished to one hoeing and raking. Much injury is done by raking the surface so very much. It is not only the means of binding and caking the surface, but it clears the stones off as well.* The earth, in its natural state, has stones, &c., to keep it open and porous, &c. If the earth is sufficiently drained, either naturally or otherwise, and the surface kept open, there is no fear of suffering either from drought or moisture."

Exposing the soil in ridges during the winter is usually practised by gardeners for the purpose of destroying predatory vermin; but it is also beneficial by aiding the atmosphere to pervade its texture, which texture is also rendered much more friable by the frost. M. Schubler says, that freezing reduces the consistency of soils most remarkably; and that, in the case of clays and other adhesive soils, the diminution of this consistency amounts to at least fifty per cent. In hoeing clay, he found it reduced from sixty-nine to forty-five of the scale already stated; and in the ordinary arable soil from thirty-three to twenty. He satisfactorily explains this phenomenon, by observing that the crystals of ice pervading the entire substance of the frozen soil necessarily separate the particles of earth, rendering their points of contact fewer.—J.

(To be continued.)

QUERIES AND ANSWERS.

FORCED POTATOES FLAGGING.

"Early in January I had a bed of leaves made up for Potatoes, about three feet thick, for a three-light frame; and, on the 26th, I put on about four inches of soil, then planted the Potatoes—*Ash-leaved Kidneys*, which had sprouted about two inches; then covered them with about three inches of the same soil, which was composed of well-decayed leaf mould, some light loam, and soil from an old Cucumber-bed, in about equal parts. There was a nice bottom heat, about that of new milk, or, say a few degrees hotter, and the Potatoes grew well and strong, but not too strong for a good produce. About a fortnight since, I earthed them by putting a little soil so as to form ridges, and they have continued to thrive well up to the present time. On Wednesday, I observed one top hanging its head as if in want of water, but I thrust my hand to the roots, and the soil was neither wet nor dry. Yesterday, I saw two more flagging like the other, so I thought I would give them a little water. I procured two large water-cans of water, just warm, and gave it them through a rose; but this day (Friday), there are several more in the same drooping state. The water had reached the roots, and I examined the stems and can find nothing the matter with them. I expected to find rotting, or cankering, but they are sound and well. There is still a nice bottom heat, not at all hot. I have given abundance of air, taking the lights off daily, except when the wind has

* A finely pulverised even surface cakes after rain much more than a surface rather rough.

been too cutting; and, on mild nights, I have tilted the lights a little at the back, with the ends of the mats hanging over them. I found some tubers about the size of a small Walnut."—G. C.

[We have had Potatoes present the above appearance from two causes,—when the bottom heat was rather too much; and when, after dull weather, we have had a very bright sunny day or two. In the latter case, a slight sprinkling over the foliage, and a little shade made all right. It was the suddenness of the change from shade to sunshine.]

You can have each of the covers, if you send the price in postage stamps, with two additional stamps for pre-payment by post.]

TREATMENT OF AZALEA INDICA.

"L. P. would feel greatly obliged for some information respecting Indian Azaleas for the conservatory. She had a number of plants from the neighbourhood of London, three years ago. The first year they flowered very beautifully; last winter they fell off a little; and this winter they are nearly all without any signs of flower. By the advice of a landscape gardener (since dead), they were placed under the shade of a wall, after flowering, along with Camellias and other greenhouse plants."

[Keep them close and warm, and syringe them frequently until the young growth is two or more inches in length; then expose to all the sun possible, and keep them in the house until you feel the points of the shoots getting firm, and not growing more. After that, either the house, or a sheltered place out of doors, but not much shaded, will suit them. House in good time.]

FIGS IN A VINERY—GREENHOUSE CLIMBERS.

"I am about to erect two new vineries, one for early-forcing and the other for late Grapes. The houses are to be lean-to. Against the wall, where the houses are to be erected, are Fig trees. Can both fruits be successfully grown under one cover? Also, will you give me a list of the twenty-four best greenhouse climbers?"—P. PINDER.

[The Figs will thrive against the back wall, provided the roots are not stunted by want of room, and each stem of your Vines is from four to six feet from its neighbour. If your Vines are closer, and there is not an open space in the centre of each light, your Figs will grow, but not fruit.]

Climbers strong.—*Habrothamnus elegans*, *Mandevilla suaveolens*, *Passiflora cœrulea*, *P. alata-cœrulea*, *P. Colvillii*, *P. edulis*, *Tasconia pinnatistipula*, *T. mollissima*, *Lapageria rosea*, *Plumbago Capensis*, *Kennedya nigricans*, *K. Marryattæ*.

Climbers weaker.—*Brachysema latifolium*, *Sollya heterophylla*, *S. linearis*, *Bignonia Chirere*, *Jasminum volubile*, *Kennedya coccinea*, *K. rubicunda*, *K. Comptoniana*, *K. dilatata*, *K. heterophylla*, *K. monophylla*, *Jasminum grandiflorum*.]

PIT FOR MELONS AND CUCUMBERS.

"It is to be heated by dung; and, as it is not wanted for very early work, there is no provision for linings—say the 1st of February, for a start—will there be heat enough? The pit will be six feet deep at the back, and four feet and a half in front, by eight feet wide. There are double walls and vacuums to prevent radiation; the vacuums to communicate with the interior, which will supply a little top heat. There will be six inches of wood above the wall at the back, and three in the front, to open as ventilators, to prevent the necessity of tilting up the sashes. The top of the inner back wall and chamber will form a box to plunge pot plants, and the front will also serve for seed-pans and small pots."—A. R. G., *Cumberland*.

[The pit is evidently designed upon some of the principles lately adverted to; only the walls are distinct and double, with an open space between them. If that space were shut in air-tight, it would prevent radiation of heat from within more than a hollow wall, because conduction of heat would go on by means of the cross-tie bricks. But, in your case, as you have the vacuum between the walls partly open, in order that the heat may get into the atmosphere, your double walls do not prevent the heat from the dung radiating and being conducted too; only you keep it in the house more, though part of that heat will also heat the outside wall, and thus get into the earth and air that bound it. If the space

between the walls were air-tight, then the heat from the dung could scarcely escape through the outer wall. That, however, is not the whole question to be considered. On the principle that everybody likes his own hobby best, we have no fault to find with this pit; but if hot water were too expensive, we should be inclined to turn the bricks of the inner wall into a small flue, and thus be independent of the changes in the weather.

Supposing that the present arrangements are adopted, the first suggestion we would make, is, that the dung should be thoroughly wrought and sweetened before being put in the bed. The second is, that, though sweet, the dung should not be greatly rotten, or should be mixed fully half-and-half with treeleaves, to keep it open. The next suggestion would be, that instead of the 1st of February, it would be quite time enough to turn out the plants into such a pit by the middle of March, or the 1st of April.

Recollect, that all you can have for bottom and top heat, except what the sun may give you, must come from the bed of dung. The more wasted, and, consequently, the closer the dung, the sooner will the heat be reduced: because, in the first place, there will be nothing left to yield heat from further decomposition; and what little there may be becomes sluggish, because you have, by a covering of earth, &c., prevented the air getting at it, which, admitted in moderate quantity, would be like sending the poker through a compact sleepy mass of smouldering coal, and a strong breeze admitted by the grate bars. If your fermenting material is fresher and drier, the heat will be more continuous; because, by tiles or other means, you may easily contrive means to admit both moisture and air to your dung-bed, and thus obtain heat so long as there is anything to decompose. Without such a contrivance, you may have a strong heat in your bed; the mass may be heated dry long before it is exhausted; but if moisture and air cannot get to it, no heat will be yielded, just because moisture and air are as necessary to the decomposition of the material you use, as dry wood and air are necessary for rapid combustion. Having, then, no linings to depend upon, you must make the most of your dung-bed by judicious treatment; and you must not commence too early, or you may have your plants standing still in dull weather, at one of their most critical periods. With all due care, the bed in the centre may fail to give heat enough, just when you want it most, as you cannot get at it to do anything to it: and, therefore, if you propose planting on the 1st of February, we would advise securing regular linings, or having a chamber beneath the bed. In either case, we presume the same amount of dung would be more continuously employed to give heat when wanted. Other arrangements are all right; and so are they all, if you avoid planting early.]

HEATING BY A FLUE.

"In a small propagating-house, ten feet by seven feet, would it be possible to have control over the heat which comes from a flue, by means of one or more dampers, or how can it be done? What dimensions ought the flue to be for so small a house?"—PAUL RICAUT.

[If only to be used at times, we would have a flue of two bricks on edge, covered with a nine-inch tile. If to be much used, and a continuous heat and rather strong is wanted, we would form the sides with three bricks on bed, and cover with a thin house-tile, and a brick over. This will take longer to heat; but it will retain the heat, give it out more regularly, and be more free from accidents. The best way to manage the heat of the flue, is to regulate the furnace. But in cases of nicety, we should like two dampers, one near the furnace to prevent the heat passing, when too much fire had been used; and more especially the really useful one, before the flue goes into the chimney. When the smallest opening is left in this last damper, just to permit draught, and furnace and ash-pit doors are close, a very small amount of red embers will sustain a regular heat in the flue.]

THE MAHALEB AS A STOCK FOR CHERRIES— CONCRETING A VINE-BORDER.

"The perfumed Cherry (*Cerasus Mahaleb*), is it a fit stock for dwarf or bush Cherries? According to theory, scientific principles, and general practice, the stock for the purpose of dwarfing a tree ought to be of closer, firmer texture than the graft, with narrow vessels, and manifold fibrous roots. In my experience I do not find the perfumed Cherry work so. With all

deference to Mr. Rivers, its great advocate, I beg to ask for candid practical opinions upon the question.

"A Vine-border, 18 feet by 15, sloping an inch in a foot—Vines planted outside, but introduced into the house through the wall-plate—it is proposed to concrete this border, from half an inch to an inch thick, with gas concrete. Previous to doing so, it is suggested that there be five rows of draining tiles under the concrete, at equal distances across the bed—with an upright pipe in the centre, to pour into the draining tiles water to moisten it and to give air. Will this be any advantage? What will be the effect? Will it do away with the need of fermenting material when forcing, as that is our aim?"—EXCELSIOR.

[The perfumed Cherry is much used for the dwarfing process on the continent, and also in many parts of England. We have not so much examined the texture, &c., as to speak confidently in that respect; but it is generally believed it answers the purpose supposed. We shall be glad to have the experience of our subscribers. Mr. Fish tar-concreted the surface of a border as you propose, and allowed it to remain on for three or four years; and though there were no waterholes, yet, on removing the concrete, the soil below was moist enough, and thickly covered with roots. The Vines bore immense crops, good bunches but small leaves: and the wood, as he thought, getting weaker, induced him to remove the concrete. His object in putting it on was to keep the border from being soaked in early forcing, and also to entice the roots to the surface. He covered the concrete with fermenting material. With plenty of tiles in the border near the top, he has no doubt the border may be covered thus for years, as both moisture and air can have access; but he can see no benefit in the proposed plan, so far as avoiding covering the border with fermenting matter in winter is concerned. When early forcing is attempted, there are just two ways in which that can be avoided—first, when the roots are so deep that the frost will not influence them; and secondly, when the Vines are planted inside the house, and part of the roots, at least, are thus in a suitable temperature. Suppose the border to be thus concreted, it will be greatly heated in summer, and the roots will be enticed to the surface: but freely exposed, it will, in an equal degree, be equally cooled in winter. In fact, frost will penetrate far deeper than it would do on a loose, uncovered border; and if the Vines at the time were growing freely, the top roots would suffer. Under such circumstances, we should prefer a tarpaulin covering, or asphalt or wooden covers. A small thickness of leaves put on early, and the covering placed over them, would keep all safe and secure, and provide against trampling the border, or being any mar-plot to the eye. A border even for early forcing, protected in the month of October, wants little more doing to it than just to prevent it, by a little covering, from getting colder. We do not see how concreting would be a substitute for protection—quite the reverse.]

PRUNING A TEA-SCENTED ROSE.

"I have a *Gloire de Dijon* tea-scented Rose, which sent up one shoot about a yard long from the pot last season. I pruned three or four inches off the top in November; and now, at every eye, it has sent out a flower-bud—eleven in all. When these have bloomed, what would you recommend me to do? Cut it down, and let another shoot come up to be treated in the same way?"—A.

[No. Let it grow on as it lists till the end of October, and then top the shoots again; but, meantime, do not let one shoot take the lead as the one did last summer. Stop any shoot that is aspiring to a leadership. When it is nine or ten inches high, and at the proper time for pruning, thin out altogether every shoot which is weak or below your own notion of what ought to carry a good strong bloom.]

FAILURE OF STAUNTONIA LATIFOLIA.

"Can you tell me the reason I cannot keep the *Stauntonia latifolia*? One was placed on the south wall of the house, two years ago in May: the leaves soon turned black, and the plant died. Another plant was planted in the conservatory against the wall last autumn, and looked very well. It was coming into full bloom; but, about a fortnight ago, the leaves began to turn black, and the flowers fell off scentless, and the whole plant is withering and dying. Our soil is gravelly, and we are about twelve miles from London."—M. H.

[Your plant of *Stauntonia* was ruined before you had it by being stunted in a small pot. We were in the same dilemma four or five years back: and we had to take up our plant, and cut off the coiled fleshy roots, and start again in bottom heat, after cutting down the plant to the last eye—that plant now is the pride of our garden. We cut it as close as a Grape vine at the end of April; and it runs a long way, and is as green as a Portugal Laurel till cutting time comes round. We protect it like the blossom of fruit trees when it is hard frost. It is now a shining beauty; but we must soon prune it, and take all shine out of it for a while. Of the flowers we take no account.]

SEEDS OF BULBS—HARDY BULBS.

"A Young Gardener wishes to know whether, if seeds of *Camassia esculenta*, *Trichonema roseum*, *Geissorhiza Hookeri*, *Sisyrinchium anceps*, *Trichonema speciosum*, sown this year, will flower next; or, if not, how soon? and will any of them flower this year? and when is the best time to sow the seeds? Are they all quite hardy? He would be grateful for a list of the handsomest hardy bulbs, with their heights and colours; and would like to know whether they can be raised from seed to flower next year: if not, where the bulbs are to be had, as but very few are named in ordinary catalogues. His garden is in Yorkshire."

[As a general rule, seeds of all bulbs may be sown as soon as they are ripe; but they, or most of them, will not sprout till the time it is natural for the parent bulb to begin to grow. Seeds of Crocuses should be sown in October, and so with all the *Ixias*, and their allies; but if such are not sown till the spring, they can do little more than just establish themselves the first season. All the seeds you mention are in this condition—they will not flower this year, nor in the next. They would flower just as soon, if they were out of the earth till next September. If you have them true, the *Camassia* and *Sisyrinchium*, are hardy; but you had better treat them all alike—say, like *Ixias*, or cold-frame roots. A list of the best hardy and half-hardy bulbs would only frighten and bewilder you, and some bulbs never flower under ten or fifteen years from seed. Your first start should be to learn the old plants, and then to try what can be done with seedlings. There is food enough for this work in *THE COTTAGE GARDENER* to last you fully ten years after it is consumed. Let us know if a list would satisfy you then.]

HOW TO FARM PROFITABLY.*

THE genus *Agriculturist* is of sluggish growth, and fixed habits; the genus *Commercialist* grows rapidly, and enjoys change. We thought "long, long ago," what an excellent hybrid could be raised by crossing the two—another race after the type of Noah; who, before he "began to be a husbandman" and a vine-dresser, was a mechanic, and a trafficker.

Now, just such a far-seeing, common sense man is Mr. Meechi. He, too, trafficked and wrought in Leadenhall Street before he "began to be a husbandman" on Tiptree Heath; and the result is the same—he has done much towards increasing the fruitfulness of the earth.

We remember, thirty years ago, the farm which Mr. Meechi now cultivates. It was then a wet, desolate region, unremunerative, and unhealthy. Now, it is well-drained, well-enclosed, well-cultivated, healthful, and profitable.

This great change has been accomplished by the adaptation to agriculture of the clear, progressive, calculating, ledger-keeping mind of the manufacturer and merchant. To suppose that Mr. Meechi made no mistake—incurred no losses—in his efforts to secure improvement, would be to suppose that he is more than a mortal. It is quite true that he committed errors, and made unremunerative outlays. But, even these he has turned into benefits; for he states what they were, and holds them up as beacons, to warn others from shoals on which he sustained damage.

We thank Mr. Meechi heartily for publishing this excellent and very cheap little volume. We recommend it to our readers, and we promise that not one of them, who has a plot under plough or spade, but shall derive pleasure and profit from the perusal.

We have no space to quote an entire chapter on any of the practical contents, and to extract a few paragraphs would be of small utility; but we must republish a portion of the introduction

* *How to Farm Profitably; or, the Sayings and Doings of Mr. Alderman Meechi.* London: Routledge and Co.

to this volume, and give with it the expression of our entire concurrence.

"It is a sound principle, that all changes which take place in agriculture, if unattended by profit, are wrong, and are not improvements. It must, however, be borne in mind, that agricultural improvement is gradual, and progressively increased by time. Thus I have found it. Fortunately for me, and, perhaps, for agriculture, I have been spared long enough to witness the full development, and reap the reward of my improvements; but, better still, I have witnessed the gradual and more general acceptance and adoption of those changes for which I was once condemned, but for which I now get some credit.

"Let us not, however, deceive ourselves by our self-esteem. The truth had better be spoken. We are, as it were, still only on the threshold of agricultural progress. As a whole, first-rate farming is the exception, and bad or moderate farming the rule of British agriculture. This is proved by our miserably low average agricultural produce, which is only £3 10s., or four rents per acre. Our whole system will yet undergo a mighty change by steam cultivation, by the economy of our town and farm manures, by the greater production of meat and manure, by the more general use of steam and machinery, by the economy of seed, by the eradication of weeds; and, above all, by the drainage and irrigation of lands not naturally filtrative: we shall not then, as we traverse our fields, probe the depth of cultivation with our walking-sticks, and have the mortification of finding an undisturbed, unmanured, and unærated subsoil, at the depth of a common wine-glass from the surface.

"The subterranean glazed pan, over which the plough has slid for a thousand years, will be torn up by steam-power; and the joyous roots of our plants will testify their exultation by a more vigorous surface vegetation, highly gratifying to the British stomach."

ON BEES SECRETING WAX.

I FIND, at page 371 of the last volume, that "B. and W." is not satisfied with my reply to "A DEVONSHIRE BEE-KEEPER," on bees secreting wax. But, as that writer can well defend himself, I see no reason why others should take up his subject so warmly, and blame me for not writing more scientifically. Were I to write so, perhaps I might be less understood. However, I have to notice, that "A DEVONSHIRE BEE-KEEPER" agreed with me in my observations on bees mending their combs generally with old wax; but his own case was a singular exception, for he considers that the bees perished from having converted their winter store of honey into wax. Such an occurrence never came under my notice, nor, indeed, strictly speaking, under his; for the mended combs were shown to him by a friend in February, 1851, who observed, that the hive was blown over in December, January, or the previous autumn. There may be some mistake as to the exact time, and the bees might have got abroad after the accident. And, even supposing that the whole of the combs rested on the floor of the hive, it would not take much wax to add about half an inch of cells on the tops of them.

Having spoken so lately on bees ejecting wax from the mouth, as well as through the segments under their abdomens, I must not return to the subject. Nevertheless, if "B. and W." were to look more carefully to what I really said, perhaps he would see reason to modify his censure of my writing, as contrasted with that of Huber.

With regard to bees collecting wax, or propolis, from Laurel leaves, his regret for having used the word "scrapa" instead of "obtain," comes with rather a bad grace, after he had perceived that expression fell in with my views on the subject. But this small quibbling can be of no interest to the reader.—J. WIGHTON.

TRADE LISTS RECEIVED.

OF *Select Agricultural Seeds*, from F. and A. Dickson and Sons, Eastgate Street, Chester.—This contains not only a good descriptive and priced list of the various Turnips, Mangold Wurtzels, Potatoes, &c., suitable for field culture, but especially of the Grasses, and their mixtures, suited to different purposes. We extract from it the following table, not only because it may be useful to some of our readers, but because it answers the queries of two correspondents (*Essex*, and *R. T.*), relative to Buck Wheat or Brank, and Chicory:—

"Quantities of various Agricultural Seeds required to Sow a Statute Acre.—The quantities of Agricultural Seeds sown per acre vary greatly

in different soils and localities; but the following table, being about an average, may guide those who are at a loss in ordering Seeds:—

Per acre.	Per acre.
Turnip 3 to 4 lbs.	Clover, of sorts, with Ryegrass 10 to 12 lbs.
Mangold Wurtzel 4 lbs.	Oats 4 bushels.
Do. do. dibbled 4 lbs.	Barley 3 bushels.
Do. do. drilled 6 lbs.	Wheat, broadcast 3 bushels.
Italian Ryegrass, sown alone 3 bushels.	Do. drilled 4 to 6 pecks.
Do. do. with Clover 1 to 1½ do.	Trifolium incarnatum 24 lbs.
Mustard 12 to 18 lbs.	Lucerne, drilled 12 to 16 lbs.
Rape, sown broadcast 12 lbs.	Gorse, for feed, or cover 12 to 18 lbs.
Do., drilled 6 lbs.	Chicory 4 lbs.
Carrot 5 to 6 lbs.	Rye 3 bushels.
Parsnip 6 lbs.	Vetches 3 bushels.
Ox Cabbage (to transplant) 2 lbs.	Buck Wheat 1½ to 2 bshs.
Kohl Rabi do. 2 lbs.	Sainfoin, common 4 bushels.
Do. drilled 4 lbs.	Do., giant 5 bushels.
Clover, of sorts, without Ryegrass 12 to 16 lbs.	Linseed, for flax 2½ bushels.
	Do., for seed 3 to 4 pecks.

TO CORRESPONDENTS.

WORK ON FLOWERS (W. Fisher).—The best modern work with coloured pictures, is the *Botanical Magazine*, published monthly. There is no cheap work on the subject.

GROTTO WORK (C. R.).—There is no publication specially on this subject; but there is much about it, and the construction of summer-houses, in Loudon's "The Villa Garden."

PRUNING PINE TREES (Flora).—Probably, Mr. Ashman's notes, at page 403 of our last number, will give you the requisite information. If they do not, write to us again, and state what further information you need.

NAMES OF PLANTS (M. C. D.).—Your alpine plant is *Soldanella alpina*. (J. W.).—No. 1. *Begonia manicata*. No. 2. *Franciscea latifolia*. No. 4. *Pittosporum undulatum*. No. 3 was too much bruised to be identified. They should have been folded separately in blotting paper.

ROCKWORK (W. E. C.).—We know of no work devoted to the construction of rockwork. There is much information about it in Loudon's "The Villa Garden."

DISEASED VINE LEAVES (A Subscriber).—The brown fungus on the leaves is promoted in growth by too much moisture in the air of the house. Dust under the leaves with flowers of sulphur. Do not syringe them; keep the air drier; and ventilate freely.

FLOWER GARDEN PLAN (G. H.).—Your garden is well laid out and planted. We would only alter *Lady Plymouth* and *Golden Chain* beds, and put the latter next the windows. Then cast your eye over these two variegated beds from the windows; and if any of the other variegated beds come in on the same line of view, that is a blemish. It strikes us that *Lady Plymouth*, *Mangle's*, and *Flower of the Day* beds, run on the same axis looking from the windows; and if so, pray alter them, or else do not tell any one that you asked our advice. If *Cheapestead Beauty* were changed for *Mangle's*, it would do all we require.

FLOWER GARDEN PLAN—VALLOTOS (A Subscriber).—The beds 1 and 2 will not do at all as you propose—that is, *Zinnias* on one side of the walk, and *Phlox Drummondii* to match. They never will match. But put one half of the *Zinnias* at the back of each bed, 1 and 2, and one half of *Drummondii* in front of each bed, and you have the thing at once. These beds are so marked on your plan; but in the letter you say that they are to be planted with *Nasturtium*, edged with *Purple King Verbena*, and *Petunias* edged with white *Verbena*, which would do very well. The *Vallotas* are all but hardy, and like strong loamy soil, and a great deal of water from May to September, and as much as *Geraniums* in winter. If they flowered last year, you may depend upon them to bloom every year as long as they are in health.

TAN FOR HEATING (C. C. Hopkins).—You say it is fresh from the tannard. You had better throw it into a heap for a week; and when it heats, turn it over, and let it be a few more days, and then put into the pit. If it do not heat quickly, cover the heap with mats or litter, to make it do so. If the pit were deep, and the tan in a good heap, this sweating process might be avoided by putting the tan in at once. But if it lie thin, it might not heat to your mind. By heating it previously, and thus, too, sweetening it, you are sure of heat at once, and a healthy heat, too.

SEEDS OF SHRUBS FOR A PIT (A. J.).—The seeds from Australia, sent by your brother, as the "Wattles," are the different varieties of the fine-leaved *Acacias*, of which, and a list of other things to be raised from seed, you will find in late numbers. Any London seedsman would supply you with *Heath* and *Epacris* seed; and you might also try the following:—*Abutilon striatum*, *Azalea Indica* (varieties), *Beaumontia grandiflora*, *Callistachys lanceolata*, *Chianthus puniceus*, *Chrozema varium*, *Coronilla glauca*, *Cytisus racemosus*, *Eriostemon*, *Leonotis leonurus*, *Lotus Jacobinus*, *Nerium oleander*, *Salvia* (of sorts), *Swainsonia*, and *Tetralæa verticillata*.

CULTURE OF QUISQUALIS (A Beginner).—It is of importance that beginners should not only base their practice well, but get the habit of expressing themselves clearly. Your note is a pattern of conciseness, but deficient in all other requisites. We have to guess that your plant is one of the *Quisqualises*, such as *Indica*. If so, do not yet despair; give the plant all the light you can, and lessen the water given, so that the plant has just enough to keep it from flagging. It is just possible that you may yet have a huge panicle of bloom at the end of each shoot. If not, grow it on, ripen the wood well before autumn, cut it down within a few buds of the base of the shoots in winter or spring, and grow on again, and success is next to certain.

MIGNONETTE FOR A WINDOW BOX (S. B. H.).—As to Mignonette, we presume you have got no plants in pots to go to, or do not choose to apply to a nurseryman to get such pots for you; as thus you might have the box filled at once. Failing that, put an inch of rotten dung over the drainage in the bottom of the box, fill up with sweet, mellow soil, with a little leaf mould, or very little rotten dung in it; sow in rows, or broadcast, and set in your Cucumber-box until the plants are two inches high; thin, and take to the inside of a window in the kitchen; to harden off by degrees, and then place on the outside of the lady's room. Stick a few bits of *Forget-me-not* along with the Mignonette; and if you do mean what is right, no

half-dozen of the finest valentines would ever excite such a magic spell. Cucumber will flourish in any sweet, fresh, light loam, enriched with rotten dung, or rotted tree leaves.

VARIOUS.—A *Young Gardener and Constant Subscriber* will much oblige us by turning to the indices of a few of our last volumes, not forgetting the present; as then he will find articles on every subject he wants, and save us the unpleasantness of re-writing several numbers entirely for his own use, at the risk of displeasing our other subscribers, as this we must do, to tell about greenhouse and stove plants that bloom in winter, the treatment they require, soils, watering, and "such like;" and the same as respects greenhouse *Geraniums*, *Azaleas*, *Camellias*, variegated plants, *Ericas*, and *Epacrises*. We are not quite sure if we comprehend the identical mode of planting the Vines described as, "I have opened out the roots in the old way," because we have met with many editions of old ways; but one thing is certain, that so far as the treatment the first year is concerned, our correspondent cannot err in encouraging the Vines to grow as much as possible, both at roots and tops. Considering the very unhealthy state of the Oranges and Lemons—unless the fibry loam were very light indeed—if we had "no sand by us at the time," we should have deferred the sifting until we had, and used that pretty liberally with the soil, instead of much, or any leaf mould, and put the plants in as small pots as possible, and then, when roots were produced, we should shift again, and give them richer food in which to revel. With this exception, we do not see our correspondent could have done better, unless he could have managed to plunge the pots in a bed of sweet fermenting material. Our correspondent has no idleness before him, if he means to keep such a place.

THE POULTRY CHRONICLE.

POULTRY SHOWS.

MAY 25th and 26th. BEVERLEY. Sec., Francis Calvert, Surgeon, &c.

JUNE 1st, 2nd, and 3rd, 1859. BATH AND WEST OF ENGLAND. At Barnstaple, Devon. Director, S. Pitman, Esq.

JUNE 6th, 7th, and 8th, 1859. GLASGOW. Sec., Robert M'Cowan, 17, Gordon Street, Glasgow.

JULY 1st, 2nd, 4th, and 5th. SHEFFIELD. Wilson Overend, Chairman. Entries close the 15th of June.

N.B.—Secretaries will oblige us by sending early copies of their lists.

A DAY'S SPORT WITH A SCIENTIFIC FRIEND.

(Continued from Vol. XXI., page 406.)

"BUT, Markham," said I, "my wife is dying with curiosity. Do tell us what is in that box."

"My shooting tackle, and a quantity of gunpowder."

How we did laugh.

He was fatigued, and retired early. I knocked at his room door in the morning; but found, from the servant, he had been out some time. He was punctual at the breakfast-table; and was already loaded with specimens of curiosities, but did not litter the house with them. A neat portfolio contained them all. It was delightful to hear his histories of common things—of plants that spring up all over our lanes and hedges. He was eloquent on ferns, and had secured two that he had long sought in vain. He gave a glowing description of his fern-case at home, and of a hotbed he had made on the top of his house. He discoursed most amusingly on his aquarium. In fact, what with his discoveries and explanations, he proved we lived in the most highly-favoured spot in the world. He certainly invested trifles, or apparent trifles, with a new character.

"But the shooting," said I.

"Well," was his answer, "we will wait a day or two. You see I am still town-dressed—I must get used to my sporting costume by degrees. You know I am not much versed in firearms; and, therefore, for my own sake and yours, I have provided myself with the newest and safest inventions of every sort."

My blood ran cold when I heard that. In many people's hands there is nothing so unsafe as a safety-gun, or other weapon.

"Well, you will have time. It wants a week to the 1st of September: and you can wear your clothes, and try your gun, and put yourself in training for your first appearance as a sportsman. But how was it you did not try your old pursuit of fishing?"

"Because medical men said it did not cause exercise, nor did it relieve the mind as much as shooting. I must be candid with you—I used to take a book or two with me, and I sometimes forgot my fishing."

I could not help laughing. I then asked him if he would walk round the farm with me. He declined, as he had rather an important paper to finish, and he had gained some valuable information in his morning ramble; he was also tired. I warned him against continuing his studies; but he assured me it was only recreation.

The next day he said, with a little of awkwardness in his manner, if I would wait ten minutes he would walk round the farm with me. He made his appearance in the first part of his

shooting costume—his boots. Poor man! he had slunk out the back way. They were of the description known in the shop-windows as waterproof shooting-boots. The drops were still rolling down his forehead from the exertion of lacing them. They reached half way up his leg. They were half-an-inch thick, and nailed so as to be a burden to any man. Then they were hard as iron, because he wished them to be seasoned, and had bought a ready-made pair on purpose; dreading lest new ones should draw his feet. Poor Charles! on the pitched path in front of the stables, as we went round the yard, he slid backwards, and forwards, and every way. I could not help laughing, but he preserved his good humour; and when I told him they were too thick and too heavy, he said No, because it was important he should keep his feet dry. We did not go far; but I had my dogs with me, and we walked into a piece of high swedes covered with wet from a shower. I told him they were damp; but he had confidence in his shoes, and entered them boldly. His knees were soon wetted.

"Ah!" he said, "I will walk these to-morrow, with my knees as dry as my feet are now."

The wet had softened the waterproof shooting-boots, and he walked easier. We did not go far; and he was very weary when we got home. I could see it was a relief to him to get his boots off; they had admitted a little water. The following morning he retired for a few minutes, and returned with his legs eased in new leather leggings that reached to the middle of his thigh.

"You may laugh," said he, "and I daresay I look strange in them, as I am not accustomed to wear such; but you are seasoned to getting wet, and I am not."

Then he adopted a huge jacket, with pockets large enough to contain any number of birds. It was much too long, and what we call "hanged" about his legs. Seeing that I laughed at all his costume, he no longer showed me anything; but good-humouredly said, he would appear fully equipped on the 1st of September. He gained strength rapidly, and his spirits rose in proportion. He was a charming companion in a country house; he knew everything—not the mere superficial knowledge gleaned from a periodical or a review, but he knew the whole history of everything. I never enjoyed anything so much as our walks in the evening, when my wife joined us, and we strolled along the lanes or in the fields. The birds, the flowers, the water—everything supplied him with a theme; and he spoke so playfully of them, yet so learnedly, that we found we had lived looking on an open book, without reading a line of it. Many a long winter's evening was afterwards made to pass quickly away by following out the lessons we began to learn with him.

The 1st of September came. As he gained strength, he became anxious—not for the sport, but because he had been led to expect a speedy and perfect restoration to health by its instrumentality. He felt the inroads excessive study had made; he thought of them sometimes with apprehension, and he was anxious to prove that he had a remedy at hand. He would like shooting, if it would enable him to follow studies he liked better. He was not naturally a sportsman—far from it.

It was a hot morning; we had breakfasted earlier than usual, and he came down after dressing. It will be readily believed, that when he made up his mind to shoot, he could find few among his acquaintances who could advise him. One warned him against one danger, and one against the other. One suggested one essential, one the other. He had made a list. He had the most extraordinary contrivance in the shape of a hat that ever covered a man's head; it had a large peak in front, lined with green, because that colour was favourable to the eyes; an elaborate system of ventilation, because the head should always be cool; a peak behind, to shoot off the rain, and prevent it from running down the neck; and it was almost conical, that it might not absorb wet. His jacket, as I have before said, was long, and large enough for two men; but he had been advised to have it made so, that his blood might have free circulation.

"I am not sure," he said, "that my shooting experience will not enable me to read a good paper to the Society on the equipment of soldiers; and I have no idea of being trussed, as though I had stock and cross-belts."

His waistcoat was full of pockets, and yet everyone contained something. His trousers were rather tight, and over them he wore his leggings. As I watched him, I saw him referring to a list, and fumbling in a pocket every minute. He had a beautiful gun, but it fired with a tube instead of a cap. A man cannot resist looking at a smart gun when he goes out with a friend for the first day's shooting, and I looked at his.

"Progress, old fellow, progress," said he, "first the matchlock, then the flint, then the percussion cap, such as you still have, and then the tube like this. Yet all is yet in its infancy. I have heard in the scientific world of an explosive power, that will at once render such things as these ridiculous. I will explain."

"No, no, Charley," said I, "not now—after dinner."

"Well, have your own way; but if you will remind me, explain that this explosive power will be in such a small compass, that a body no larger than that percussion cap —. By the way have you seen the new machinery for making them? Not only are they better made, but the economy is immense. Have you ever noticed what a fallacy —."

"Yes," said I, "if you go on in this way, our idea of shooting will be —."

"True. I had forgotten; let us go on."

There is little difficulty in finding birds on the 1st of September; and when we entered a piece of clover, one dog stood, and the other backed—"Come," said I.

"What an admirable picture of instinct that is! because, you know, training would not do it all; and how it shows the mastery of man over animals!"

Here the birds rose, and I killed two. Of course, the dogs did not move.

"Admirable sight! Do you know, I find I learn something every minute. I could prize such animals. Come here good dogs, come here," and he pulled a huge piece of bread out of his pocket. "Come here. I have something for you."

"Don't my dear fellow; don't. You will spoil my dogs."

"No, no," said he; "your theory is wrong. No animal is spoiled by kindness. In whatever quarter of the globe we go, we find the animals are subservient to man, and the means of making them so is kindness."

I began to think his lessons were not so pleasant in the field as when out for a walk; but he was so good-natured, and did all in such perfect good faith, I could not even be impatient with him.

"You did not shoot?" said I.

"No; but I shall next time. I confess all my attention was taken up by the dogs."

"Bravo! You will make a sportsman."

"I hate the man who is only intent on slaughter, and has no admiration for a good dog."

My two pets, Tony and Mitty, were still motionless; but at a wave of my hand they ranged. It was only for a moment. Tony drew slowly and stealthily along, followed by Mitty, stopping at intervals; then, at last at dead point, both were motionless as statues.

"Beautiful! beautiful!" cried Charles, at the top of his voice.

The birds rose at once. I had time for one shot only. "My good fellow, if you are so noisy in your admiration, our guns will be useless, and the dogs even will be frightened."

"Tell me—you understand these matters—do you think these dogs participate in the sport? Are they fond of it? Is it necessary that game should be killed to them? or would they be discouraged if we went all day without discharging a gun?"

"I cannot pretend to say. I believe they are fond of the gun; but you are likely to be able to solve your own theory. You have not yet put up your gun."

"By the way, no; and I do not recollect at this minute whether I loaded it or not, or whether one or both barrels; but I can ascertain."

I took post behind him. I have a wholesome dread of the methods used by beginners, and, above all, clever men, to ascertain whether their arms are loaded. I had once a narrow escape at the hands of a friend, who could imagine no other method of ascertaining but pulling the trigger. I therefore got behind Markham, and was somewhat surprised to see him put his gun on the ground. He then referred to a written paper, and then began to empty one of his many waistcoat pockets. When this had lasted a minute or two, I ventured to ask what process was going on.

"You see, I have taken account of the exact number of tubes I had in my pocket; and if, then, there are two missing, why my gun is loaded."

There were two deficient. Onward! The dogs were again standing at the end of the field, and I stopped the beginning of another eulogium on their merits, by telling him to be quiet, and to walk quickly up with me. He did so, as well as his costume would permit; and this time he discharged both barrels. Three birds fell.

"Come," said I, "you have killed this time."

"A good beginning I am disposed to doubt," was the reply. "I shot first, and I noticed my fire was quicker than yours : the discharge of both barrels of my gun was almost simultaneous. The birds fell to the last discharge, and that was yours."

"I assure you, you killed one."
"Well, I will not dispute it."
"Come, load again."
"Stop," and the gun was again laid down, and the waistcoat searched. "I must register my shots."

He had an elaborate contrivance, stuck full of small brass pegs on each side. They were immovable till a spring was touched, and then they could be pushed in.

"You may smile," said he, "but I am fond of order and statistics. It has always struck me, as an anomaly, that the English people,—business-like, thinking people,—should be so averse to anything like real statistical knowledge. I will show you with how little trouble I am able to record my shots, and the success that attends them. This instrument is made after the pattern of the tell-tales used to detect watchmen ; only theirs act by clock-work, mine by a spring. This will mark up to one hundred. Now, you see, having had two shots and killed one, I depress peg No. 2. It remains so, and the peg above, still protruding, marks an unsuccessful discharge. You are thinking, I see: can you suggest any improvement?"

He asked me this in such perfect good faith, I could not help smiling. "No," I said, "I am thinking whether I shall get any shooting. Your lectures are very amusing; but we have been out an hour and a quarter, we have not half beaten one field, and we have had five shots—we ought to have had twenty."

"Well, I am sure I have enjoyed it very much; but I confess my legs ache already. I envy you your freedom of action, and think I will take off my leggings."

He did so, and declared himself ready to proceed. I was surprised to see with what elasticity he trod; and he was delighted. We soon came across birds, and his gun made but the report of his tubes. I suggested it was not loaded; but he was sure it was, because he always put the tubes in last. I suggested it was easy for a beginner to make a mistake—but that was foreign to his notions of order; and he could not admit that there was, perhaps, some derangement in the mechanism of his powder-flask. I asked to look at it. It had been contrived by a scientific friend of his. When the measure was full, it detached itself from the flask; thereby, as he said, obviating the possibility of a serious accident, which might happen from the explosion of a flask of gunpowder, as, in the act of loading, a continuous stream of it might lead to the contents of the flask, and cause a grave accident. There was nothing to object to in his flask; and he was convinced his gun was properly loaded. He had, however, the same result the next time: birds rose; and I cut a learned disquisition short by declaring I would draw the charge of his gun. He tried to persuade me to wait an hour; as, in that time, he could, from pieces of wood cut on the spot, and with the aid of his knife, make a contrivance that would extract the charge without the necessity of anyone being close to it, and, therefore, in danger.

"You see," said he, "the rotatory motion would cause the worm to pierce the cartridge, and then the lever would withdraw it. If people would only study the first principles of mechanics, and begin by small experiments and successes, they would not only be delighted to persevere, but they would be charmed with a pursuit that they now think abstruse and uninteresting. You would place yourself so that an explosion would do you serious injury. I would, with the aid of simple machinery, stand behind it."
"Well, my dear fellow, go to that wood, and cut the wood you want."

While he was gone I drew the charges of both barrels. There was no powder—they were loaded with shot only. It amused me much; and I needed it. I was getting tired of my learned companion as a brother sportsman. He returned laden with wood. He was provided with a knife which had a saw, and he had used it unsparingly.

"Now see," said he, "these three stout pieces will form a triangular scaffold, to which I will fasten the barrel of the gun, and which will allow the stock to rest on the ground. I will pass a long piece of whipcord round the ramrod; and when the worm of the screw is resting on the wadding, I will, by withdrawing the whipcord, impart a rotatory movement to it, which cannot fail to give it a firm hold. I have then this stout stick."

"I can save you all the trouble," I said, "I have drawn your charges, which consisted of shot only. There was no powder. Let me see your flask again."

I soon found the cause. He had detached the top at the wrong screw, and the powder was spilled on its way to the gun. He was annoyed, when I smilingly pointed it out.

With a shade of sadness on his face, he said, "My dear friend, these things could not have happened to me when I was younger. I was not so absent and stupid as this when I left school. But I am become part of my studies. I am little more than a part of one of my own lectures, or a principle of one of my own machines. Will you let me keep on? I have been led to expect health from this pursuit—and if it fail, so do I; I did not think I was so bad. I have felt light and well since I have been here, and I should like to try it longer."

"So you shall, Charley; but let me be your guide in sporting, as you shall be mine in science. I owe you many turns for your lifts at school. You kept me straight then; let me do as much for you now." But he was depressed all day; and, I think, it was a relief to both when it was over.

He rallied in the evening, and was himself again; but showed trepidation at breakfast the next morning. He had no sporting costume on. My wife joked him, but he was nervous. However, I took him away, and rigged him in clothing of my own, allowing him his own hat and boots. I also divested him of all his scientific apparatus for shooting. I lent him a percussion single gun of my own, and had the satisfaction to see him enjoy his sport, and recover his health. I limited him to one lecture per day, and that at luncheon time.

He has still fits of science at times, and threatens to employ part of his leisure in writing some papers on field sports, which he thinks of forwarding to THE COTTAGE GARDENER.

REPORTED DEATH OF MR. HEWITT.—In *The Field* of Saturday last is given a statement of Mr. E. Hewitt's death, at Birmingham. Our readers will be rejoiced to hear that there is no foundation for this too-readily admitted report.

YOLKS OF EGGS GREEN.

"A Constant Subscriber would be very much obliged to the Editor of THE COTTAGE GARDENER if he could give any explanation for the very peculiar colour of the yolk of her hens' eggs this year. Her hens are all pure Dorking, and have nothing unusual in their food. The eggs are perfectly good to the taste and smell, but the yolk is of a dark greenish colour, which is anything but pleasant to look at; and nobody would eat them if it were not known that they were perfectly fresh."

[We can do but little for you in this case. It is common for eggs to be flavoured by any particular food—as garlic, malt-dust, or anything of the sort; but we do not know what affects colour. Our panacea for all such things is castor oil; and we advise a table-spoonful for each hen that lays the eggs complained of, repeated every third day while necessary.]

OUR LETTER BOX.

HENS PICKING THE FEATHERS FROM THE COCK (*G. H. L.*).—Nothing is a more certain proof that fowls are out of condition than their picking off and eating each other's feathers. Your first care should be to remove the cock. This will not interfere with the laying of the hens. If they are short of green food, that is the cause—the remedy is easy. Throw in some sods of growing grass. If they have been fed on meat, that causes it—give them no more. Give them plenty of green meat, feed them on oat-meal mixed with water, and put the cock back when his feathers are grown. If the hens eat each other, dose them well with castor oil.

LONDON MARKETS.—APRIL 4.

POULTRY.

We have had but a moderate supply, and a very dull trade. There is little change since last week.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls.....	5 6 to	6 6	Ducklings.....	4 0 to	4 6
Smaller ditto.....	4 0	4 6	Guinea Fowls.....	2 6	3 0
Chickens.....	3 0	4 0	Pigeons.....	0 9	0 10
Cock Turkeys.....	9 0	10 0	Rabbits.....	1 4	1 5
Goslings.....	7 0	7 6	Wild ditto.....	0 8	0 9

WEEKLY CALENDAR.

Day of Mnth Week.	Day of	APRIL 12—18, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon R. and S.	Moon's Age.	Clock befoSun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
12	Tu	<i>Habrothamnus elegans.</i>	29.945—29.935	51—34	N.	—	14 af 5	48 af 6	20 3	9	0 58	102
13	W	<i>Hardenbergia Comptoniana.</i>	30.050—29.954	53—28	E.	—	12 5	50 6	38 3	10	0 37	103
14	Th	PRINCESS BEATRICE BORN, 1857.	30.117—30.101	62—48	S.E.	—	9 5	52 6	51 3	11	0 22	104
15	F	<i>Jacksonia grandiflora.</i>	30.019—29.970	70—38	S.	—	7 5	53 6	5 4	12	0 6	105
16	S	<i>Kennedya prostrata.</i>	29.920—29.682	75—15	S.W.	.16	5 5	55 6	18 4	13	0 af.9	106
17	SUN	PALM SUNDAY.	30.001—29.932	57—31	N.	—	3 5	57 6	rises	14	0 23	107
18	M	<i>Lasiopetalum macrophyllum.</i>	30.190—30.066	64—27	E.	—	1 5	58 6	8 a. 9	15	0 37	108

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 57.1° and 36.7°, respectively. The greatest heat, 73°, occurred on the 14th, in 1852; and the lowest cold, 20°, on the 16th, in 1847. During the period 127 days were fine, and on 97 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

SOME of the most hardy and woody plants may be removed from the greenhouse to a cold pit, where they can be protected from frost. It will make more room for the *Cinerarias*, *Pelargoniums*, and other such plants.

AZALEAS.—Such as have done blooming to be repotted, and their fresh growth to be gently promoted in a higher temperature for a short time.

CAMELLIAS.—Continue to keep a moist atmosphere about the plants making wood, with a temperature of about 65° by day and 55° by night. Air to be given at all opportunities, to produce sturdy, short-jointed wood. The plants in flower to be shaded during bright sunshine.

CINERARIAS.—Regular attention to be given to them, that they may not suffer by want of water.

CLIMBERS.—Regulate them as they grow, more particularly those in pots which are intended to cover a wire trellis. *Kennedyas*, *Thunbergias*, *Nierembergias*, *Tropæolums*, and other such plants of a slender and tender habit, delight in a soil the greater proportion being composed of leaf mould.

CHIRYSANTHEMUMS.—Strike cuttings, and pot off rooted suckers.

HEATHS.—Any requiring repotting, should receive that attention without delay, apportioning the size of the pot to the vigour of their growth; as the free-growing kinds will require more room than the less vigorous ones.

NEW HOLLAND PLANTS.—As many of them are now either in flower, or approaching that state, they will, consequently, require a larger quantity of water,—more especially large specimens not shifted since last season. Continue to pinch off the tops of the leading shoots, to produce bushy plants.

PELARGONIUMS.—Attention to be given in tying up, watering, and fumigating, if the green fly appears.

STOVE AND ORCHID-HOUSE.

As the soft-wooded stove plants will now be making rapid growth, the free admission of light is necessary to prevent them from drawing; using shade only during scorching sunshine. When a plant is shifted, give less water to the roots; as the fresh soil, after the first watering will be moist enough for some time. Some of the free-growing kinds of *Cattleyas*, *Calanthes*, *Phaiuses*, *Saccobabium*, *Stanhopeas*, and *Zygopetalums*, should be encouraged to make kindly growth by frequent syringings about their pots, blocks, or baskets.

FORCING-HOUSES.

CHERRIES.—The principal objects to be attended to are—abundance of air, with due precaution against cold draughts, a moist atmosphere, and the free application of the syringe. The temperature the same as last week. Particular attention in watering to be paid to the trees in pots,—as too much is as bad as, if not worse than, too little.

FIGS.—Continue stopping the young shoots at the No. 550, Vol. XXII.

fourth or fifth eye. Keep the syringe in frequent use until the fruits begin to change for ripening. Plenty of water, and occasionally a little weak tepid liquid manure, to be given at the roots, more especially when they are confined in pots or tubs.

MELONS.—As soon as a sufficient number of fruit blossoms for a crop are expanded, or are likely to expand within a day or two of each other, they should be impregnated. As prevention is better than cure, keep the plants in a healthy-growing state by frequent syringings in fine weather, and closing early; insects will but rarely, if ever, attack thriving plants.

PEACHES and NECTARINES.—As soon as the stoning of the fruit in the early house is completed, give them a good watering with clear, weak liquid manure; keep the shoots tied in regularly, and pinch off all laterals. If the fruits in the late house are set, partially thin them; as more dependence may now be placed on a crop than at an earlier period of the season.

PINE APPLES.—Fruiting plants will be greatly benefited by strong solar heat, as, under its influence, evaporation will be rapid; therefore, water must be applied to both roots and leaves. Succession plants to be shaded during sudden bright sunshine or sunbursts; and be guided in the application of water by the active or inactive state of the roots.

VINES.—Thinning the fruit is an operation of primary importance. The first thinning to be performed when the berries are the size of Peas; the second when they begin to be crowded; and the third after the berries are stoned. A piece of strong wire, eight or ten inches long, crooked at one end, is useful to draw the bunches backward and forward, as the operator may require. The Vines in the late house to be tied up as soon as they begin to break. Syringe them every fine afternoon, and close the house early. Give air early in the morning, that the leaves may become gradually dry before the sun acts powerfully upon them.

WILLIAM KEANE.

MAKING DOUBLE FLOWERS.

THE genius of science, the investigator of natural truths, the highest skill of practical knowledge and profound empiricism, have applied themselves earnestly, in our age, to fathom and propound the mysteries in which the manufacture of double flowers is involved; yet, after the most careful perusal of their labours, I cannot make a double flower out of a single one.

But mind me, a double Dahlia, or a double Daisy, or Marigold, is, not one of them, a botanically double flower. In the eyes of science such flowers are just as much single as the Buttercups of the meadows. A really double flower, like a Rose, must have all the stamens changed into petals; and all the pistils, also, are so changed in the greatest number of double flowers.

The science of vegetable development explains the inevitable necessity for this change, but not the mode or cause of the change itself. Every petal of a wild Dog Rose is on a journey, as it were, from the seaside up to the

highest castle in these parts—the Castle of Industry. As long as a pilgrim is on a journey he has not wrought out his destiny; but every stage of the journey brings him nearer to the point. And so it is with a “Rose-leaf,” or petal. Other parts of the same flower are on the common journey to the Castle of Industry: but the petal is four stages farther on the road than the stamens; the stamens are eight stages a-head of the pistils; and none of the parties ever alter a mile, or a minute, from these differences, whether they are more or less than I say, of the Rose party. Every stage of the way must be reached just as science demands; but whether by rail, or coach, or pack-saddle, or by trudging it, remains to be discovered to this very day.

The seaside, from which the different parts of a flower started, is the root of the plant. They are in the great deep; and the Castle of Industry, to which they are all going, is the leaf. A petal, therefore, is a leaf on a certain stage of a journey; and so are a stamen and a pistil. What we want to find out is, some contrivance to bring up the rear, some fine morning, before those in advance have started for the day's journey; get up the stamens and pistils before daylight; push them on with all speed, in order to reach the stage where the petals “put up,” before the latter depart on the last stage of the journey to the said Castle. And when we have them all at that, the last resting-stage on the journey, we have a perfect and complete double flower, and one which will never seed.

When you hear of a double flower producing seeds, you may rely on it that all the parties on that journey were never brought simultaneously to the same stage as the petals. The pistils, being the farthest behind on the journey, or some stragglers from their ranks, must have remained behind; else there would be no seeds. Nothing can be more easy to learn than the way science points out from that sea to the Castle; and nothing seems more difficult of understanding than the means of conveyance by which the mile, or the minute, could be bridged over in one instant. The reason why science cannot suggest the exceptional mode of conveyance is, because it knows very well that the same relative strengths with which the different, or three, parties to a double flower started on the journey, are held intact by the same power which furnishes the necessary supplies at each stage; so that, in the endeavour to push up a stamen or a pistil to the front, the front itself must be in motion at the same time. Then the result would be, in consequence, no flower at all; but all the parties would be pushed on to the final stage of development—to the condition of leaves. When the flowers, and parts of the flowers, of fruit trees get into this first development there is no fruit. All the parts get up to the Castle at once, where they are free as air. The way to make fruit, one would think, might also be the proper way to make double flowers: but it is not so. You never heard of an Apple or a Pear tree being operated upon to make it fruitful.

Turn up any of the flowers more than in the usual degrees of travelling comparison—near, nearer, nearest. The pistil is nearly a leaf; the stamen is so more nearly; and the petal the nearest of all. Science and practice join hands here; for they are now, for the first time, on their journey to put up at the same stage for the night. Their day is spent, their lodgings are not comfortable, and both of them will be certain to dream,—dreams are fulfilled contrariwise. Any one who might hear their dreams would have a chance of double flowers, by doing the single ones exactly contrary to what the philosophers and the practical gardeners were doing them in their dreams.

Now, here is a chance. Who will gather up the dreams and compress them into a four-column article for *THE COTTAGE GARDENER*? I am exempt from that task. But what would be said if I should turn round and advocate the claims of empiricism—the claims of the emperor of

the thumb rule? But fair play is a precious jewel, and I shall see fair play done, if I lose caste for it.

Now, then, where is the man who has yet produced more double flowers than the emperor of the thumb rule? Where, indeed! Who made the double Hepaticas, the double Auriculas, the double Polyanthus, the double Cowslip, the double Daffodil, the double Clove, Pink, and Primrose, the double Rose itself, and the best and most numerous of all the double flowers in the world? His majesty of the thumb rule did them all. One leaf out of his book would be worth all the scientific disquisitions and dreams put together; because, with our present knowledge, we could soon learn to account for the reasons of success. His majesty is most affable, and I have been under many obligations to him; and I shall here, for once, at all hazards, advocate his principles, and I shall continue to do so from this day to the end of my life; unless, in the mean time, the reformers of his plans,—the doctors and great guns of our own system,—will give us cause and proof of a more simple way of getting our aims double. But Mr. Wooler, of Darlington, has got a-head of me at page 6 of the current volume; and those who would excel in the line must read what he says. I have been of the same mind as he is for a long while, and I did intend to write something on the subject; but I did not mean to go so far as to put a dead stop to our just-practical notions till I read Gilbert's “Vade Mecum,” and he convinced me that a dead stop should take place between practice on principle, and practice by the rule-of-thumb. But let us take the Polyanthus first.

Mr. Wooler got some of them half-double by growing the seedlings in very rich, light soil in pans. In rich, free soil, I raised nearly three thousand seedling Polyanthus within the last four years, and there is not a vestige of doubleness in any one of them—except one hose-in-hose kind. I had to send them out to bloom after the second season; and some five or six hundred of them are not yet reported on from a duke's gardener, to whom I appealed to give me a lifting hand; but I do not expect to hear of a single one of them being double, as an Irishman would say. Two thousand of the seedlings were from one plant of Polyanthus, to see if, out of so many, one should turn out to be the same as the parent. No one did, unless it be with the duke's gardener. Three pips of a Polyanthus were sent to me last week from London to judge them; but I am no judge of pips. I must see a whole truss. I said so to one of the Editors, and sent him a truss of my plant—the parent of the two thousand seedlings—to show what I meant for a proper judgment on a new Polyanthus. “Good gracious! what a Polyanthus!” was the beginning of the letter which was returned about the pips. But it produced no double flower, or one like itself; and I conclude that the best gardening, assisted by science, is inimical to the production of double flowers: and, knowing that haphazard gardening, with no light from science, had succeeded in getting many kinds of double flowers, I have come to a fixed resolution of recommending the rule-of-thumb in that particular branch.

The next spit, below the turf spit, in a meadow or bank, is the soil that was used in the time of empiricism. Soil fresh, but free from all roots and fibres—the molehills of early days; the most cooling dung—such as that from cows in the last stages of decay—was then very freely used; and the compost was made as fine as the sieves or screens could make it; and no drainage, beyond one piece over the hole in the pot, was used.

Another practice was, to sow the seeds of Polyanthus, Auriculas, and other florists' flowers in the autumn, in boxes, with the top soil made as fine as brown rappee snuff; and that below as much so, and as close as barley-meal in store. These seed boxes were kept out of doors all winter, with some little protection from frosts and splashing rain, and the seeds vegetated not till the spring.

The seedlings were kept in the same box for two years, at least, and a fresh surface of the finest soil was put, one each year, in October. All sowings and transplantings were done at the full of the moon; but on that let us each have his own notion, without insisting one way or the other.

Now, the inference from all this is, that the extreme richness of the soil stimulated all the three parts which go to form a double flower—the petals, stamens, and pistils—to a certain point, or stage, on the journey, or development into a leaf; and that, at that stage, the bad drainage, and the want of air in the soil among the roots, were powerful checks to the principles of development; the less-developed parts, as the stamens and pistils, could be pushed on to that of the petals; but a contrary agent—bad gardening, prevented a farther rise; so that the power to make double flowers consists of two strong agents, and the one constantly opposing the other. The having the seeds in the soil for six or seven months before the sprouting, may be a third agent or not. The only certain thing is, that under such circumstances, all the best double flowers now in cultivation had their origin.

But we must not stop here, since the researches of science have revealed to us that peculiarities in the constitution, the idiosyncrasy of the individual, are transmitted from parents to their offspring, both in the animal and vegetable kingdoms. Therefore, during the first course of these experiments, we may not arrive farther than to induce a peculiarity—a distant, but distinct peculiarity, or disposition—to a double flower, that disposition must be transmitted to a second generation of the same stock and blood, and also through other generations; but all under the same treatment which predisposed the change.

When florists get any quality, or goodness, once established in a seedling, they do not ask for fresh blood to heighten, or perpetuate, that quality: they rather trust to the well-known transmission from blood to blood, and breed in and in. The best two seedlings in a thousand are immediately crossed again, if they both possess the wished-for quality. A different blood is not let in, unless a different quality is desired. A leaf out of their books will be the best guide on breeding for double flowers, if the pollen of one seedling is not thought to be better in the instance.

D. BEATON.

OUR SUPPLY OF WATER THIS YEAR.

SEVERAL times attention has been directed to the principle of watering plants, in pots, and in the open ground; but all these directions had reference to a supposed abundance of the necessary liquid. Instead of that being now the case, many of us are beginning to calculate where our supply for the coming summer is to come from; and, as a consequence, scheming how every drop that falls upon houses, or anywhere else where it can be collected, shall be saved for use. Instead, too, of slashing water about in the paths of houses, for the purpose of cleansing and throwing moisture into the atmosphere, gardeners, especially in elevated places, are beginning to look upon water with as much carefulness as if they were resident in the eastern continent, and not in a little island like Britain. Surrounded with such an expanse of ocean, it might be considered, that, in our latitude, the evaporation arising from that alone would give us a sufficient amount of moisture in the shape of rain, independently of that raised by evaporation from the land. On the western coast we suppose that this is still the case; but in the inland and eastern districts there can be no question, whatever be the cause, that there has been a great diminution in the fall of rain this last season, reaching to as much as from twelve to eighteen inches below the average. As a consequence, the springs are unprecedentedly low—lower even now than they were in the autumn, and likely to

continue so, or even to get considerably lower still, unless we have continuous heavy rains before the warm weather sets in; for it has been sufficiently demonstrated, that it is the rains and snows of winter, and not those of summer, however heavy the latter may be, that raise the springs, or the great body of water beneath us. A great quantity of water often falls in thunder-storms in summer; but then much is absorbed by growing plants—much is quickly evaporated into the atmosphere again, owing to the heat of the ground; and if the surface of the ground is at all hard, as well as dry, much passes off to the nearest hollows and streams. If the present dry weather continue, many of us will have to look to the catching of such water in summer for the means of attending to our pot plants, and giving what little assistance is possible to general crops.

The want of water, last season, was a general complaint; and even at this early period gardeners are getting stinted in their supply—many being already interdicted from taking a drop from the deep well that supplies the mansion. A great many ice-houses are unfilled this year, not because ice could not have been obtained in November, but because the proprietors of, and resorters to, ponds and pools, objected to the ice being taken, owing to the shortness of water. Many of these pools, filled from surface drainage, especially from hard roads, are now better supplied; but others, depending upon springs, or deep drainage from the fields and grounds adjacent, are still comparatively dry. A large pond here (Luton), overshadowed, too, considerably with trees—and which, in the beginning of summer, used to have from three to four feet of water, making us quite independent, so far as general watering was concerned—had but little in it last summer; and for two months now has been wholly empty. With the exception of what rain falls on its large surface, and the rain from the roof of a large shed in its vicinity, it was supplied from deepish drains in a part of the park or meadow-ground in its vicinity. When it was most plentifully supplied with water, it came chiefly from open culverts, and shallow irregular ditches, by the side of hedgerows well supplied with timber.

Whether, notwithstanding our insular position, the great changes effected on the surface of the country of late years,—chiefly by the clearing off woods; greatly enlarging fields by doing away with the intervening hedgerows and hedgerow timber; and draining the land to a great extent,—have had the influence of making our climate so much warmer and drier than it used to be, is worthy of careful inquiry by those who have time at their disposal; as it is just possible that even these improvements may be carried to such an extent as may bring upon us evils of an opposite nature. Inquirers on this subject are generally agreed, that the reducing the amount of timber has made the atmosphere drier, and, in some cases, lessened the general volume of water in our rivers. Travellers in America tell us, that from this cause the channels of once-considerable streams are now dried up; and it is said that similar facts in plenty can be adduced from the continent of Europe. Trees not only prevent, by their shade, evaporation from the ground, but by their sharp points, either when leafless or when in foliage, act as condensing points when the atmosphere is well supplied with vapour. When I was just feeling my way amid the theories and facts of evaporation and condensation, I noticed, in early spring, that a perfect puddle was frequently formed beneath a Beech tree on the side of the road, whilst all beyond its circumference was dry. On placing some vessels below the tree one evening, so as to catch some of the water as it fell, and, making a rough calculation, I was amazed at finding that that single tree had condensed enough of vapour to make from twenty to thirty gallons of water, and I had frequently noticed the ground much wetter. It would be interesting to know the comparative properties of trees in this respect; for even if Beech should prove to be one

of the best, it is peculiarly unfitted for hedgerow timber on account of its roots, like the Ash, running so near the surface of the ground, and thus preventing all healthy growth beneath them.

It may be only a crude idea, and one that scarcely deserves mentioning, yet I cannot help thinking that I might have had more water in this pond if the improvements had not been made, and the hedgerows and open culverts had been left as they were. At any rate, I should have expected a moderate supply from heavy thunder-showers in summer; though but little of that, I fear, unless in extreme cases, will find its way to, and run from, the deep drains. I shall certainly be agreeably disappointed if the pond be filled before the rains and snows of a succeeding winter. It would not be difficult to find cases where farmers and gardeners, who never knew any trouble about water before, had to be at great expense for earthing it last season, without any prospect of matters being improved for the coming summer. No doubt, the great diminution of the rain-fall explains this matter; but the question is a very important one, how far the process of improvement, in clearing and levelling hedgerows, and throwing a dozen of large fields into one, and draining them, so as to have the ground warmer and drier, have contributed to that diminished rain-fall by lessening the amount of moisture raised from the surface by evaporation, and again lessening the number of the elevated condensers of that moisture, whenever their small points became much colder than the surrounding atmosphere.

These improvements are so apparently advantageous, that, but for this water-question, there could not be the semblance of a drawback; but in all cases where water is likely to be scarce, part of the water from drains, instead of being lost, should be preserved in small pools formed at convenient places, in the simplest and most economical manner, such as puddling the sides and bottom with clay, or even earth, and then covering the inside all over with turf before the water is admitted; and preserving in similar places, and, better still, in brick tanks, the water that falls from buildings of all descriptions, especially if covered with glass, slate, or tiles, instead of thatch. Rain water, if clean, is the best for all purposes; and, especially if exposed to the atmosphere, it is the best friend to the gardener. There are few gardens, even in elevated places, where a tithe of the water that could be thus procured and kept is carefully saved. With the exception of a few small cisterns, or tanks, that will hold a few days' consumption, the great thing has been easily to get rid of the rain water, instead of preserving it; and then there comes grumbling upon grumbling when horse-power and water-carts must be employed to bring liquid to keep plants and crops from perishing, when plenty of water, with a little looking a-head, and one outlay, might be secured near at hand. In gardens of any extent, a great deal of pure water could be obtained from houses and sheds, and secured in large brick cement tanks. Much, also, for common purposes, might be secured from hard roads and walks, and spaces between houses and pits, which, collected in a pool, or pond, out of the way, would do for common purposes. I wish I had more, or larger, conveniences of these kinds. Upon what I have, I have been depending entirely for months. I fear they will be exhausted before planting-out time in May; but one thing respecting them is so far cheering, that every heavy shower will add a little to their contents, when no liquid during the summer could be expected from deep, underground drains. There is an old proverb, that "to be forewarned is to be forearmed." If this season should prove at all like the last, the great want in gardening, in many places, will be water. In this neighbourhood, many of the wells, even in valleys, are dry; and rivulets are small in comparison with what they used to be. Without very heavy rainfalls directly, there is little chance of the springs rising before winter. Knowing all

this, we cannot do much in the way of arming ourselves against consequences. But if we use economically and without waste what we now have, and continue to save up as much as we can from every shower that visits us, then, whatever be the result, we shall, at least, escape the evil of unpleasant self-reproaches. R. FISH.

THE DAHLIA.

By the time this is perused by our readers, the season will be sufficiently advanced to plant out old kinds of Dahlias that are merely wanted to make a show in the mixed flower-border or the shrubbery. If it is necessary or desirable to increase them, then take a root, and divide it into two or four parts, taking care to leave at least a pair of buds to each division; also, be mindful to cut the tubers as little as you can. Make a good-sized hole where each division is to be planted, and throw in a couple of spadefuls of good rotten dung at the bottom; put a little soil over it, and mix it well up with the soil at the bottom of the hole; then plant the tuber, covering it about two inches. I have found Dahlias so planted grow stronger and flower better than the same kinds started into growth in heat, and kept warm till they were grown considerably. In that state they are apt to be blown about by the wind, and often broken and mauled dreadfully, even if they escape frost.

Newer kinds—of which the grower has, perhaps, only one root—will now be sending up shoots. If there are plenty springing, the shoots may be slipped off, each kind named as it is gathered, and then planted in separate small pots in sand plunged in heat. Such cuttings, or slips, strike quickly; and as soon as roots are emitted they should be potted off directly, and gradually hardened to bear full exposure. If, however, any scarce kind only sends up one or two shoots, then it will be necessary to take a sharp knife and cut the shoot off above the two lowest buds; such cuttings to be treated exactly the same as the slips above mentioned. The buds left will soon spring up; and, if increase is wanted, may be cut off and struck in the same manner. It is not, however, a good practice to carry on this severe mode of increase too often or too far; for the shoots then come weak, and the plants will be weak also.

Now being the time to order in the new kinds, no time should be lost in sending the names of the sorts wanted.

As soon as they arrive, place them under a cold frame or pit for a few days till they recover the effects of the journey: then repot them, and replace them in the frame, and let them grow on for a fortnight, giving plenty of air and water to encourage a strong growth. If you are fortunate enough to get them early, and have plenty of convenience, a second potting would be of great service previous to planting them out in their blooming quarters. To obtain fine bloomers this care is necessary. Many growers plant them out from the small pots they arrive in; and the consequence is, the plants do not grow strong, and flower late and weak. Hence the sort is too often condemned as almost worthless, and the dealer unjustly blamed. I know some dealers work their bulbs so hard, and the plants they send out are so slender, that there is little chance of their doing anything the first year. I would advise all purchasers to give their orders to respectable men; and they will then get good stout plants, which, with a little trouble in repotting as described above, will be sure to bloom well and true to character.

In planting out, I think a few cautions necessary. Always take care to have the ground well-worked and well-manured, and in a sheltered situation. If wet, it should be thoroughly drained, and the beds in such a situation should be raised considerably above the general level. If the soil is dry and shallow, it should have a larger quantity of rich soil and manure added to it. Then the distance from plant to plant should be sufficient to allow room for the side-stakes—nothing is gained by planting too thick. As a general rule, I would recommend six feet from row to row, and five feet from plant to plant in the row.

When I plant Dahlias out to grow for exhibition, I first drive stakes firmly down just where each plant is to be placed. Then I plant them out; the tall ones in a back row, and lesser ones next, with the lowest growers in front. I book the names of the kinds as they occur in each row, so that no mistake can possibly occur afterwards. When they have made considerable growth, I lay round each plant a mulching of half-rotted dung. This keeps the soil cool and moist; and, when rain falls, or watering is

necessary, the water carries down into the soil the enriching qualities of the manure used as mulching.

With these few brief remarks on the culture of the Dahlia I close my paper; and now proceed to give a list of the best new varieties, and a selection of the best older varieties:—

TWELVE NEW VARIETIES.

Chairman (Sainsbury).—Clear golden-buff. Full and deep. Cut moderate. Four feet high.

Conqueror (Cook).—Light orange class. Average size. Good form. Three feet high.

Daughter of the Morning (Rawlings).—Nankeen ground, shaded with salmon. Fine. Four feet high.

Dr. Livingstone (Rawlings).—Crimson purple. Average size. Good form. Four feet high.

Egeria (Salter).—Pale fawn, shaded with lilac. Good form. Three feet high.

Golden Drop (Keynes).—Chrome yellow. Form good. No cutting required. Five feet high.

Grand Master (Keynes).—Deep orange. Attractive and desirable. Cut hard. Three feet high.

John Dory (Turner).—Primrose. Good form. Moderate cutting. Four feet high.

Miracle (Dodds).—Yellow, edged with carmine. Good form. Thin the buds out, but no cutting. Four feet high.

Mrs. Keynes (Keynes).—Pure lilac rose. Good form and substance. Cut hard. Three feet high.

Rose-bud (Alexander).—Rosy purple. Large. Good form. Moderate cutting. Four feet high.

Sir W. Wallace (Bush).—Rosy lilac. Fine form and substance. Three feet high.

Ten shillings and sixpence each. If the whole are ordered, a reduction will be made.

TWENTY-FOUR SELECTED OLDER VARIETIES.

Alice Downie (Keynes).—Pure white. Fine form. Three feet high.

Amazon (Holmes).—White shaded. Three feet high.

Annie (Rawlings).—Fine lilac. Three feet high.

Chrysalis (Mieliez).—Peach blush. Four feet high.

Colonel Wyndham (Turner).—Crimson. Four feet high.

Commander (Fellowes).—Dark maroon. A large flower. Four feet high.

Hon. Mrs. Trotter (Reid).—Light. Very fine. Three feet high.

King (Rawlings).—Fawn. Very good. Three feet high.

Lady Franklin (Rawlings).—Buff. Extra. Four feet high.

Lollipop (Holmes).—Salmon. Four feet high.

Lord Palmerston (Holmes).—Dark scarlet. Four feet high.

Miss Burdett Coutts (Turner).—Shaded fawn. Four feet high.

Mrs. Church (Church).—Yellow tipped. Fine. Four feet high.

Mr. Critchett (Rawlings).—Orange. Good. Four feet high.

Omar Pacha (Drummond).—Crimson scarlet. Three feet high.

Pandora (Fauvel).—Crimson. Three feet high.

Perfection (Keynes).—Orange. Good. Three feet high.

Princess (Rea).—Rosy lilac. Four feet high.

Rachel Rawlings (Keynes).—Peach blush. Four feet high.

Salvalor Rosa (Miquet).—Lilac. Four feet high.

Sidney Herbert (Keynes).—Rosy crimson. Four feet high.

Sir Colin Campbell (Dodds).—Lilac. Good. Three feet high.

Triomphe de Pecq (Miquet).—Very dark. Fine. Three ft. high.

Yellow Beauty (Turner).—Very fine. Four feet high.

The above twenty-four kinds are very good. Whoever wishes to grow a pan of twenty-four dissimilar varieties should order them. The whole may be had for as many shillings.

NINE NEW FANCY VARIETIES (all well-formed and constant).

Comus (Keynes).—Light, striped with crimson. Cut hard. Four feet high.

Countess of Derby (Dodds).—Rose-blush ground, spotted and striped with maroon. To be slightly cut out. Four feet high.

Dandy (Keynes).—Creamy ground colour, spotted and striped with rosy maroon. Cut hard. Four feet high.

Jessie (Dodds).—Bright golden-buff, striped with red maroon. Average cutting out required. Four feet high.

Kean (Dodds).—Dark crimson, tipped with white. Thin out well. Four feet high.

Lady Hulse (Dodds).—Rosy-lilac, striped and blotched with maroon. Free flowerer. Cut hard. Four feet high.

Leonard (Wheeler).—Amber, tipped with white. Four feet high.

Madame Albani (Dodds).—Deep lilac, tipped with white. No cutting. Four feet high.

Star of the North (Harrison).—Blush-white ground, edged with clear amber. Three feet high.

Teu shillings and sixpence each.

TWELVE SELECTED OLDER VARIETIES.

Carnation (Keynes).—White, striped with purple. Three feet high.

Cleopatra (Salter).—Orange, striped with crimson. Three feet high.

Conqueror (Keynes).—Blush, striped with crimson. Four feet high.

Favourite (Keynes).—Purple striped and spotted. Three feet high.

Florence Nighlingale (Dodds).—Buff, tipped with white. Four feet high.

Imperatrice Eugénie (Miquet).—Good white, edged with purple. Three feet high.

Miss Frampton (Rawlings).—Red, tipped with white. Three feet high.

Mrs. Boshell (Rawlings).—Blush, striped and spotted with purple. Three feet high.

Oliver Twist (Fellowes).—Purple, striped with white. Four feet high.

Pigeon (Dr. Knyff).—White, edged with salmon. Three feet high.

Souter Johnny (Dodds).—Lilac, striped with purple. Four feet high.

Tiger (Keynes).—Pale crimson, much striped with maroon. Four feet high.

All good-shaped, full flowers. The twelve may be had for 12s.

NEW BEDDING DAHLIA.

Profusion (Keynes).—Yellow, slightly tipped with white, free, small, dwarf, and very double. I have heard that this will prove a very useful variety for bedding. Two feet high.

OLDER BEDDING VARIETIES.

Alba Floravun du nana (Dodds).—Very good. Two feet high.

Prince Frederick William (Turner).—Crimson. Small bloom, and very free. Two feet high.

Royal Purple.—Very free.

Sir James Watts (Turner).—Light scarlet. Good. Two feet and a half high.—T. APPLEBY.

AUSTRALIAN SALAD CRESS.

WE have recently tasted, and can strongly recommend, this new salad herb, introduced to public notice by Messrs. A. Henderson & Co., of the Pine Apple Nursery, Edgeware Road. They state that the plant attains a height of about twelve inches, branching and spreading all round the stem. The leaves only are gathered; and these are produced in constant succession throughout the summer. They are somewhat of the smooth-leaved Endive form and size, on a long stalk, delicately pale green in colour, with a flavour more pleasant and more mild than that of the common garden Cress, and peculiarly refreshing.

CALCEOLARIA CULTURE.

FAR from asserting the method pursued by me to be the only correct one, I am aware many reasons—as locality, soil to be obtained, &c., may render necessary a deviation from any rule the most practical gardeners can lay down; yet, thinking my method may be of service to some unfortunate gardener, I will endeavour simply to state what with me has grown as good plants of Calceolarias, for bedding purposes, as can be desired.

Many, I am aware, consider the beginning of October early enough to propagate the Calceolaria; because it is not desirable they should attain much size before spring, as, being rapid growers, they will soon become large enough. If propagated in October, ere that step is over, and they are sufficiently rooted to place in winter quarters, November has far waned; and, in too many instances, you find, not a lot of healthy, well-hardened plants, but a mass of one-third-ripened-elongation-of-tissue, crowded in cutting-boxes or pans.

As early as possible in September I clear out all the soil of a spent Cucumber or Melon frame, turn up the dung inside to

the depth of a foot, to ensure drainage, and then spread thereon a layer of ashes, to prevent the worms in the dung from intruding.

I have always found the soil which was used one season for Melons good enough for Calceolarias. I, therefore, turn up some of this, adding leaf mould and sand. So that my compost is composed of equal parts of the three named. This should not be sifted, but placed four inches deep on the ashes, and slightly beaten with a spade; by which the cuttings, when inserted, may more readily take hold of it. This plan I prefer to boxes or pans, the cuttings not being so likely to suffer from any little inattention.

In selecting my cuttings, I carefully avoid any plants not quite healthy. I proceed to prick them in in the usual manner, and shade them, by whitening the inside of the glass. This will render the light, in the hottest days of September, sufficiently subdued.

A short time is required to root them in this way. As soon as the roots are one inch long, I pot them in 60-sized pots, and place them on ashes in a cold frame, where they will also require shading until the plants begin to grow; which as soon as I perceive, I take out the head of each with a small knife, leaving but two joints above the surface. By this timely stopping I ensure a sufficient number of shoots to form the basis of a compact, healthy plant. This done, nothing further will be required until the 1st of November but attention to watering, and the occasional stopping of any plant which might not be ready at the first time of this operation.

About the time stated I take out a few rows on one side of my frame, to give room for re-arranging; and on a fine day go over the entire stock, removing any decaying foliage, weeds, or superfluous shoots; and, having done so, fumigate the plants once.

They are yet allowed to remain in frames, as I prefer them to any heated structure, provided frost can be kept out, and the situation is tolerably dry. I always find Calceolarias delight in a low temperature, and are not injured by slight frosts, but rather benefited by them—these arresting any tendency to grow. I do not advise a trial of this, as probably the experiment may be carried too far, and the stock lost. I merely say slight frosts will not kill Calceolarias. This winter having been mild, I have left them in the frames. Having endured well to this time, they now begin to grow—consequently requiring more frequent watering. To prevent the ravages of the aphid, fumigating once again will be of service. A little sulphur carefully blown through them will effectually stay mildew, &c.

Stopping will again be requisite, if abundance of air be given at all times when the weather will permit, and a supply of water adequate to their demand be supplied; ever bearing in mind that the coddling system must produce the very reverse of what you desire.—CALCEOLUS.

As many of your correspondents seem to despair of success in growing Calceolarias to perfection as in seasons gone by, I, perhaps, may be allowed an opinion upon them. I cannot subscribe to the idea that the Calceolaria is labouring under a debilitated constitution; but that the great heat and drought of the two past summers are the only cause of these ouseries. I find, if plenty of mellow dung be dug in a foot or more in depth—but very little in the surface soil—it acts as a reservoir in cases like the last two hot summers; and in wet seasons the roots will remain nearer the surface.

However hot the days may be, if the roots have within their reach a counteracting medium, they will never feel to any extent the evil influences of an English summer.—W. E., *Ashby-de-la Zouch*.

I FIND by your number of the 8th of March, that "CALCEOLUS" takes me to task about my culture of Calceolarias. Upon reading what I had written, I fear I expressed myself rather vaguely. By "waterproof-pans," I meant pans that would hold water, and not pans with holes for drainage, as seed-pans have. We call the pans I use "flower-pot bottoms." I have made use of glazed marmalade-pots, both for striking Verbenas and Calceolarias, and I found them answer well.

The Calceolaria being a native of Chili and Peru, and being found growing up the sides of the Andes, is, if I am rightly informed, covered with snow for a considerable portion of the year; so that cold moisture is one of the essentials for its successful cultivation. I have always found that dryness and strong heat do not suit it.

I do not use "bog" in potting Calceolarias, because they cannot ramble for their food when confined in pots; so I give them, what I consider, better food while penned up.

I cannot see anything "novel" in the mode of striking them. The bog used in the beds helps to supply moisture a long time in summer, although I am prepared for long droughts.

I have, at present, my plants in 32-pots, excepting some few that I put on an inside border, and a few in 60-pots. Those in the border are by far the best plants; those in the 32-pots next in superiority.—S. H.

FRUITS AND FRUIT TREES OF GREAT BRITAIN.

(Continued from page 6.)

NO. XVIII.—FONDANTE D'AUTOMNE PEAR.

SYNONYMES.—*Belle lucrative*; *Beurré lucratif*; *Bergamot lucrative*; *Bergamotte Flévé*; *Seigneur d'Esperen*; *Doyenné d'Automne*.

Among the autumn pears, *Fondante d'Automne* takes rank as one of the first; but, unfortunately, in many collections the name has become associated with *Fondante de Bois*, a much inferior variety, and hence the one has frequently been taken for the other. The distinction between the two is, however, at once apparent: *Fondante de Bois* being a long, yellow, pyramidal fruit; while *Fondante d'Automne* is Bergamot-shaped, and always more or less green.



Fruit rather large, from two inches and a half, to three inches wide, and two inches to two inches and a half high; Bergamotte-shaped.

Skin at first of a bright, clear, grass green, becoming yellowish at maturity, and entirely covered with large spots of brown russet, interspersed with russet dots.

Eye open, with yellowish-green downy segments placed in a slight depression, but sometimes altogether wanting.

Stalk short and thick, from half an inch to three quarters long, frequently fleshy and wrinkled.

Flesh white, greenish at the margin, buttery, melting, and very juicy. Juice sugary, very rich, and with a slight and pleasant musky flavour.

A delicious autumn pear; ripe at the end of September, and continuing in use for about three weeks.

The tree is of a nice, close, compact, pyramidal habit of growth, and well suited for garden culture, grafted on the quince stock, and upon which stock it succeeds well. It is a very excellent bearer, even in its young state, and is not particularly fastidious as to the soil in which it is grown.

This excellent pear was raised about thirty years ago by the late Major Esperen, of Malines, and was among the first results of his endeavours after the raising of new fruits. Like many other good varieties, it has a varied nomenclature; but its original name is *Seigneur d'Esperen*, and the original tree is still growing in the garden at Malines.

Our figure was taken from fruit grown by Mr. Rivers, of Sawbridgeworth.—H.

WALTONIAN CASES.

PEOPLE who have not the convenience of gas find the oil-lamp, which heats this apparatus, uncertain in its action, requiring a good deal of experience to manage, and, in any case, attended with a vast deal more dirt than ordinary patience can bear with. I can make the lamp burn twenty hours. There are many who cannot make it burn at all, except in a way which causes the formation of an inconvenient quantity of soot. But, whether you get the mastery of the lamp or no, an occasional absence from home will cause you to sigh for some source of heat which requires no experience whatever; so that, at the proper hour, a servant-maid, a stable-boy, or the "missus," may replenish the flame, and so sustain the bottom heat. Sigh no more, put the lamp away, and forget the vexation of spilling the oil and blacking your fingers, and use the twelve-hour candle, made expressly for the purpose by Price's Patent Candle Company, at the suggestion of—SHIRLEY HIBBERD.

VARIEGATED-LEAVED GREENHOUSE PLANTS.

IN reply to your invitation (page 405, vol. xxi.), I intend to adhere strictly to *greenhouse* kinds; though there are several very nice things among the *hardy* ones that are quite suitable for growing under glass during the winter months. But, as you promise such a list shortly, I will not forestall you by giving more than the above heading signifies.—C.

Agapanthus umbellatus, var.	Hoya carnosa variegata
Agave, var., 2 or 3 sorts	Hydrangeas, 3 or 4 sorts
Ageratum cælestinum, var.	Jasminum Azoricum, var.
Arundo donax, var.	Myrtles, 2 or 3 kinds
Azalea Indica, var., 2 sorts	Nerium oleander, var.
Citrus Japonicus, var.	Petunias, 2 sorts
Coronilla glauca, var.	Pittosporum Tobira, var.
Daphne Indica, var.	Salvia fulgens, var.
Fuchsias, 3 or 4 kinds	Senecio Jacobaea, var.
Geraniums, many sorts of Scarlet	Solanum pseudo-capsicum, var.
Do. Ivy-leaved, do. Scented vars.	Verbena Defiance, var.
Habrothamnus elegans, var.	Veronica Andersonii, var.
Heliotropium aucubæfolium	Yucca, 3 or 4 kinds

CULTURE OF THE FILBERT.

As the Filbert is not in such general cultivation as it ought to be, or, where it is grown, is usually so very much neglected; and, as it will grow in almost any kind of situation, not being like many others which are here to-day and gone again, I shall jot down a few words on the treatment the bushes have received, and then the mode practised to preserve the nuts.

The different modes of propagating the Filbert are easy and well known to everyone; but, still, I must say my favourite way is from suckers, which can be had from any old bushes without much trouble.

The common Filbert does exceedingly well here on a heavy soil with a clay bottom. There is another sort, known here as the *Lambert Filbert*; which is a very large, long, late nut—some of them growing considerably more than an inch in length. This is a tremendous bearer, and not in a fit state to gather until fully three weeks after the common Filbert. Its colour then, in the most exposed and sunny situations, is but of a very light brown. It does well here planted on the same kind of soil as the common Filbert; but it does equally well on a light soil with a dry subsoil. The *Red-kernelled Filbert* is not considered of sufficient merit to be grown in any quantity. The great *Cob-nut* does very well here, but a sort known as the *Frizzled Cob* succeeds very much better. It seems to make but very little difference on what kind of soil this is planted; for I have found it bears equally well on a light soil as on a heavy soil—but the bush does not hold out so long on the light as it does on the heavy; neither do the fruit of any of the kinds keep so long from the light as they do from the heavy soils.

Filberts and Cob-nuts are fond of plenty of good manure, which helps them not a little; but a great number of them here are planted in a situation to which it is very difficult to convey manure. In fact, if any at all is put to them, it must be carried a very long distance on men's shoulders, or in handbarrows, which would occupy too long a time: therefore, a very great number of them are obliged to do without it.

As soon as any of them decline being fruitful, or appear at all yellow, they are, when the leaf is on, marked with a piece of tape, and in the autumn cut down close to the ground, and all suckers grubbed up; so that, when they shoot in the following spring, they may form a bush as round as possible.

The second spring, slip off what branches are not wanted, so as to keep them clear of each other—always remembering that this is the time to choose whether fine fruit is to be obtained or a lot of trash. This plan, in my opinion, beats the *one-leg* system; for, if you lose two or three seasons, it is very soon made up after, having what the boys around here call "such whopping clusters," with another advantage, also,—which is, always having young bushes. With Filberts and Cobs grown in this way, during the last three years I have taken as many as fourteen prizes—eleven of them being firsts.

The way to preserve these nuts is very simple. In the first place, see they are thoroughly ripe before they are gathered; and then perfectly dry before they are stored away. After they are gathered, they are put into a heap, or into large hampers, to let them sweat, for about a week; and after that, exposed to sun and air for another week, when they are in a fit state to store. They are then put into large pitcher-shaped jars, which hold from a bushel to two bushels each, without mixture of any kind; but they are not covered down until a fortnight afterwards. They must be examined, to see they do not sweat again, and then get dry in the jar of their own accord—or the consequence is, they all get fusty together, which entirely spoils them.

There are grown on this estate from fifteen to twenty hundred-weight yearly; and in a few years there will be a great many more, there being several thousand more young bushes planted.

In the cellar, at this present time, there are some that were grown in the year 1854, and so on of each year after up to this last year; and, I believe, a few that were grown in 1852. I have exhibited them after being kept seven years. The *Lambert nut* will retain its husk for four years, and some of the clusters are then as perfect as when gathered; although, in that time, the husks get very tender. Those kinds that the husks remain on are superior in flavour to the slipped ones, and everyone can judge for himself in which state they look best when placed on the table.

The *Lambert nut* is the best of all to keep; for the longer it is kept (in reason), the sweeter and better-flavoured it becomes. This kind has not that peculiar flavour that the others have when gathered, although it acquires it by keeping. Next to it is the *Frizzled Cob*, which is an excellently-flavoured nut when gathered, and, what is more, does not lose its good quality by keeping,—the only drawback belonging to the nuts being the impossibility of keeping them in their husks. Neither the *Large Cob* nor the *Common Filbert* will keep so long as the two sorts above noticed. Should any of the readers of THE COTTAGE GARDENER pay a visit to the Bath Horticultural Society's fête, which is to be holden on the 11th of May next, I have not the least doubt but that the owner of them will show a dish of each of the last four years' Filberts.—J. ASHMAN.

VEGETABLE CULTURE AND COOKERY.

(Continued from Vol. XXI., page 388.)

CUCUMBERS, TO PICKLE.—Put the Cucumbers into salt and water for three days, then scald them with weak vinegar, and let them remain three days longer. Scald some strong pickling vinegar with a few onions, black pepper, allspice, cloves, ginger-root, and horseradish; pour the whole over the Cucumbers, and keep them in jars for use. *Gerkins*, which are small Cucumbers, are pickled in the same way.

CUCUMBERS, PRESERVED.—Pare thinly the Cucumbers; cut them in two, lengthwise, and take out the seeds; lay them in cold salt and water for twenty-four hours; then wash them and lay them in alum water for twenty-four hours longer, when they are to be taken out and drained. To each pound of Cucumbers take a pound of sugar, of which make a syrup, by putting a teacupful of water to each pound of sugar. Skim it well, put in the Cucumbers, and boil slowly till they are quite clear; take them out, lay them on a dish, and continue to boil the syrup till it is thick, adding the juice of two lemons and two races of ginger. Put the Cucumbers into jars, and pour the syrup over them. Let the jars be kept air-tight.

CUCUMBERS LIKE PRESERVED GINGER.—Divide the Cucumbers in halves, lengthwise, and take out the seeds. Soak them for

three days in brine; then wash them in cold water, and set them over the fire in plenty of fresh water. As soon as they boil, take them off, drain them, and set them over the fire again in plenty of another water; let them come to the boil a second time, and change the water again; but this time add a small lump, the size of a hazel nut, of bicarbonate of potash. Let them boil for half an hour, and stand all night in the water to cool. Next morning put them on a sieve to drain. Bruise, in a mortar, half a pound or more of the best and freshest ginger, which put into two quarts of water, with an ounce of cloves and a stick of cinnamon. Set it on the fire, and let it boil till the water is thoroughly impregnated with the ginger. Strain the liquor through a jelly-bag, and to every pint put a pound and a quarter of pounded loaf sugar. Clarify this syrup with white of egg; and as soon as it has boiled up and been well skimmed, lay the Cucumbers into it, together with all the races of ginger that had been boiled; and after boiling ten minutes, put the whole into a jar, and let it stand two days. Drain off the syrup, boil it up again, and boil the Cucumbers and ginger ten minutes. Put all back in the jar; and after standing three days, put the syrup and ginger into the pan again, and boil till the syrup adheres to the spoon. Then put in the Cucumbers, let them boil a quarter of an hour, and return the whole to the jar, which must stand uncovered twenty-four hours, and then be covered with bladder and white paper.

CUCUMBER SALAD.—Pare the Cucumbers, and as you slice them, score the ends that they may be in small bits as if slightly chopped. Add some small young onions also cut small, Cayenne pepper, salt, a little ginger, the juice of half a lemon, and some vinegar. This will be found an excellent salad, and does not disagree with weak stomachs.

CUCUMBER SAUCE.—Take two or three small pickled Cucumbers, and chop them small; add a little grated lemon-peel, a little butter, salt, and pepper, a dredge of flour, with two spoonfuls of water, or vegetable broth. Let all these just come to the boil, and then stir in two table-spoonfuls of good cream, or some brown gravy. It must be served immediately.

CUCUMBER SAUCE (White).—Peel two small, or one large Cucumber, and cut them in pieces. Put them into a stewpan with two spoonfuls of water, a tea-spoonful of salt, one of sugar, and half a one of pepper. When tender, add a table-spoonful of flour, wet with two gills of milk. Boil and serve hot.

CUCUMBER SOUP.—Make some broth with a neck of mutton, a thick slice of lean bacon, and an onion stuck with three cloves, a carrot, two turnips, some salt, and a bunch of sweet herbs, and strain it. Brown with an ounce of butter the crumb of a French roll, to which put four large Cucumbers and two heads of lettuce, cut small. Let them stew a quarter of an hour, and add to them a quart of the broth; when it boils, put in a pint of green peas; and as it stews, add two quarts more of the broth.

CUCUMBERS, STEWED.—Pare four or five large Cucumbers, and two middle-sized onions, and cut them into rather thick slices. Flour them well, and fry them in butter a nice brown colour. Put them into a saucepan with half a teacupful of gravy, or broth, and season with pepper, salt, and catchup. Stew them till quite tender; then add a little butter worked in flour, boil a few minutes till of a good thickness, and serve hot.

CUCUMBER VINEGAR.—This is excellent for using with salad and cold meat. Put fifteen large Cucumbers, paired and sliced thin, into a jar with three pints of vinegar, four onions sliced, three shallots, a little garlic, two large spoonfuls of salt, three tea-spoonfuls of pepper, and half a tea-spoonful of Cayenne pepper. Let these stand four days, give the whole a boil, then strain and filter the liquor into bottles for use.—ROGER ASHPOL.

(To be continued.)

BRITISH POMOLOGICAL SOCIETY.

An ordinary Meeting of this Society was held on the 3rd ult., ROBERT HOGG, Esq., Vice-President, in the chair. The following gentlemen were elected ordinary members:—CONRAD WM. FINZEL, Esq., jun., Frankfurt Hall, Clevedon, near Bristol; G. N. HUNTER, Esq., 5, Hereford Square, Brompton; RICHARD HAINES, Esq., 278, Marylebone Road, Paddington; Mons. FERD. GLOEDE, aux Sablons, Moret-sur-Loing, France; Mr. SPIVEX, gardener to J. H. Houlton, Esq., Hallingbury Place, Essex.

It was announced that Mr. Newton, of Enfield Chase, desired to offer a prize of half a guinea for the best dish

of six *Cornish Gilliflower* Apples, to be competed for at the Meeting of November 17th. Mr. Newton, at the same time, announced, as a matter of course, that he should not himself compete.

Premiums had been offered by advertisement at this Meeting as follows:—

Two guineas, and one guinea, for the best and second best collection of well-kept Apples and Pears, three fruits of each kind, accompanied by careful descriptions of the manner in which they have been kept.

The result of this advertisement was one of the largest displays of fruit the Society had ever received—and probably, for the time of year, the most interesting that had ever been exhibited in Pears and Apples; 250 dishes were sent of the kinds then in season; and some of them were accompanied by such descriptions of the manner in which they had been kept, as satisfied the Meeting that the experiment (originally suggested by Mr. Busby at the Committee Meeting on the 19th August) was a very successful one.

The largest and most interesting collection, sent by Mr. Rivers, of Sawbridgeworth, contained fifteen varieties of Pears and thirty-four of Apples. All were good and sound,—not over-kept, as was the case with some of the other collections. Unfortunately, however, for its consideration in regard to the premiums, it was not accompanied by the information required in the advertisement.

A letter from Mr. Rivers (which had been delayed in the post-office) arrived during the Meeting, and was read by the Secretary, containing the following general information concerning the mode of cultivation:—

"APPLES AND PEARS,

"Grown on bushes in the open air in the nursery at Sawbridgeworth.

"*Soil.*—Clayey loam mixed with calcareous sand resting on hard, white clay, with numerous chalk stones.

"*Site.*—About sixty feet above the level of the Stort, a tributary of the sea.

"*Pruning.*—Very slight summer pinching in June and July, and shortening leading shoots towards the end of August.

"*Management.*—Taking up the trees biennially in November, and replanting them; cutting off the ends of straggling roots.

"*Manure.*—A quarter of a peck of soot is given to each tree in March, on the surface, in a circle three feet in diameter.

"PEARS.

"*Manure.*—In replanting, some leaf mould or rotten manure, and the calcareous sand common to this district, are given to each tree; two shovelfuls of the former and one of the latter, well mixed. In March the same quantity of soot, as to Apples, is given in the same manner.

"The Pears are all on the quince stock, and the Apples on the *English Paradise*."

The day after the Meeting the Secretary received the following letter from Mr. Rivers, and which he copies in this place, as it supplies the information which was desired at the Meeting:—

"March 3rd, 1859.

"DEAR SIR,—I forgot to add to my notes on Apples sent, that they have been kept in a very old, dry, arched cellar, under my packing-shed, the average winter temperature of which is about 50°. Air is constantly admitted at one end, through a wire grating, and flows gently through by the crevices in a very old, ill-fitting door at the end opposite to the wire grating. I daresay you observed the remarkably fresh state of the Apples. I have kept *Hawthornden* Apples quite sound till May, in this cellar. The fruit is gathered, and, without any preparation, placed in small wooden compartments, in double and single layers, and never touched till wanted.

"The Pears were kept in a greenhouse (with Camellias) in new flower-pots, covered with pieces of slate.

"I am, dear Sir,

"Yours truly,

"THOS. RIVERS."

The Pears were firm, handsome, and well coloured, but generally unripe, excepting *Bon Chrétien d'Auch*,

which was sweet, half melting, but astringent. *Bergamot d'Esperen*, just ripening, and promising to be very delicious. The other kinds sent, or some of them, would, probably, have been improved, if they had been ripened in a higher temperature. They were as follows:—*Léon le Clerc de Laval*, *Colmar des Invalides*, *Bellisime d'Hiver*, *Bezi de Caissoy*, *Bergamot des Paynes*, *Coulen de St. Marc*, *Due de Brabant*, *Beurré de Bretonneau*, *Beurré de Rancee*, *Prevost*, *Morel*, *Fortunée Parmentier*, and *March Bergamot*.

The Apples were also very firm, handsome, and in good condition, and were generally more ripe than the Pears. A few, such as *Spring Ribston Pippin*, and *Golden Harvey*, were shrivelled, though good in flavour. The best dessert kinds were:—*Golden Russet*, *Reinette Franche des Côtes*, *Baxter's Pearmain*, *Boston Reinette*, *Court-pendu Plat* (very good), *Claygate Pearmain*, *Braddick's Nonpareil* (rather flat), and *Dutch Mignonne*. The remaining kinds in this collection, and which were chiefly Kitchen Apples, were in good state for use, and were as follows:—*Caldwell's Keeper*, *Northern Greening*, *White Stone Pippin*, *Norfolk Bearer*, *Reinette de Canterbury*, *Calville Blanche*, *Calville Malinore*, *Beauty of Kent*, *Lady Apple*, *Ladies' Sweeting*, *Dumelow's Seedling*, *Gooseberry Apple*, *Bedfordshire Foundling*, *Sturmer Pippin*, *De Barberie*, *Winter Peach*, *Cuisse Madame*, *Reinette Grise*, *New Baldwins*, *Trevizand*, *Reinette Diez*, *London Pippin*, *Winter Colman*.

The first premium was awarded to a collection by Mr. JOHN COX (gardener to William Wells, Esq.), Redleaf, Kent, comprising eleven kinds of Pears, and twenty of Apples. These were also in very fine condition, generally large, and not over-ripe. The circumstances of soil, &c., at Redleaf, have been detailed in former reports. The Pears were generally from walls, and the Apples from standards of from fifteen to thirty years old, very little pruned save by occasionally thinning the branches; great attention, however, being paid to keeping the trees free from moss, by the use of quicklime in spring. With regard to their mode of keeping, the following information accompanied the fruit:—

"The Pears were laid out singly on the floor of an upper chamber, when gathered, and the windows kept open, so as to afford a thorough ventilation for two months; they were then sorted over, the best selected, and wrapped separately in paper, and placed in layers, in deep boxes, the lids of which were laid on, but not fastened. The layers were separated from each other by very dry, old Brakes (*Pteris aquilina*). They were not disturbed until required for use, and have kept better than I could ever keep them before on the shelves of the fruit-room.

"The Apples were laid in heaps on the shelves of the fruit-room, and ventilation—to which I ascribe great importance—secured by leaving the door open, as well as a window at the opposite end, until the sweating process was over, when both were partially closed. Nothing more has since been done except to sort them over frequently, and pick out such as showed signs of decay. The fruit-room is a mere shed at the back of a greenhouse; but its coolness is very much increased by a strong growth of Ivy all over the roof."

Of the PEARS:—*Bezi* (or *Bergamot*) *d'Esperen* was very sweet, juicy, melting, and high flavour, with delicious aroma—the best Pear tasted at the Meeting;—*Beurré Rance* and *Old Colmar*, melting and very juicy, but not rich;—*Ne Plus Meuris*, sweet, half-melting;—*Easter Beurré*, half-melting, but flavourless;—*Passe Colmar* and a *Seedling* from it (very like the parent), juicy, half-melting and tolerably sweet; and *Flemish Bon Chrétien*, not ripe. This collection included, also, a handsome dish of *Catillac*, and some magnificent specimens of *Uvedale's St. Germain*, seven inches long and twelve inches in diameter.

Of DESSERT APPLES, the following are the most interesting facts:—*Old Nonpareil*, firm, juicy, and delicious;—*Flander's Pippin* (TRUE), ovate, conoid, colour pale lemon, scattered over with minute round spots of russet; flesh tender, sweet, and juicy;—*Reinette Grise*, under the name

of *Pomme Royale*;—*Sam Young*, very nice and juicy, with delicious flavour;—*Claude*, an Apple not heretofore described, but worthy of being more extensively cultivated. Fruit oblate: generally irregular in form; greatest diameter, from apex to base, $2\frac{1}{2}$ inches; transversely, 3 inches; eye smooth, clean and wax-like; stalk deeply inserted, medium length and thickness; colour greenish-yellow, irregularly scattered over with minute specks of russet, rosy scarlet on sunny side, and semi-transparent; flesh firm and juicy; flavour rich and sugary. It was reported, also, to remain good till May. (Grafts hereof are requested for distribution on the 1st of February, 1860, and application for a share of them, or any other kind, must be made not later than January 25th);—*Blenheim Orange*, large, juicy, sweet, and good; exceedingly well kept;—*Golden Knob*, firm, and good-flavoured, but not juicy.

(To be continued.)

THE SCIENCE OF GARDENING.

(Continued from page 9.)

WE have seen that plants search after and acquire food by the agency of their roots; and that hair-like organs near their extremities appear to be the chief, if not the only parts, employed in the intro-susception of all food not in a gaseous state; for M. Duhamel observed, that that portion of a soil was soonest exhausted in which the greatest number of the extremities of the roots were assembled.—(*Physique des Arbres*, vol. iii., p. 276.)

The discoverer of the hair-like processes at the base of the spongioles being the organs for absorbing nutriment from the soil, is Professor Gasparini, of Naples. These hair-like organs he calls suckers. They are, at first, straight and smooth; but, when more mature, acquire a variously irregular and branched form. This irregularity and ramifying do not change the internal structure of the main body of the sucker, for this retains a cavity throughout its length, and throughout each of its branches. Each sucker imbibes from the soil by means of its entire surface. They are formed and decay periodically, to be again renewed and pass through the same changes.

MM. Sennebier and Carradori found that if roots of the Carrot, Scorzonera, and Radish, are placed in water—some with only their extremities immersed, and others with their entire surfaces plunged in, except the extremities—the former imbibe the water rapidly, and the plants continue vegetating; but the others imbibe no perceptible quantity, and speedily wither. This suggests, also, the reason why the gardener, in applying water, or manure, to trees, or shrubs, does so at a distance from their stems. A good rule for ascertaining the proper distance for such applications, seems to be to make them beneath the circumference of the head of the tree; for, as M. De Candolle observed, there is usually a relation between that and the length of the roots, so that the rain falling upon the foliage is poured off most abundantly at the distance most desirable for reaching their extremities.

This explains why the caudex, or main limb of the root, is continually extending in length. By this extension it each year shoots forth into a fresh soil. If the extremity of a root is cut off, it ceases to increase in length, but enlarges its circle of extension by lateral branches.

The original direction of the root is generally perpendicular, in which it descends to a considerable depth if not interrupted by some obstacle. In taking up some young Oak trees that had been planted in a poor soil, Du Hamel found that the root had descended almost four feet, while the height of the trunk was not more than six inches. If the root meets with an obstacle, it then takes a horizontal direction, not by the bending of the original shoot, but by the sending out of lateral shoots. The same effect also follows if the extremity of the root is cut off. It grows in length no longer. Du Hamel made some Cherry-stones, Almonds, and Acorns, to germinate in wet sponges; and when the roots had grown to the length of two inches, he then placed them in glasses, as bulbous roots are placed, so that the extremity of the root only touched the water. Some were previously shortened by the cutting off of a small bit from the point; others were put in entire. The former immediately sent out lateral shoots, but elongated no farther in a perpendicular direction; the latter descended perpendicularly to the bottom of the glass. He cut off also the tips of some roots vegetating in the earth, and had the

same result; the wound citrised, and the root sent out lateral divisions.

When a root ceases of its own accord to elongate, it sends out also lateral fibres, though less vigorously, and with less rapidity than in the above cases. The lateral branches of perpendicular roots are always the more vigorous the nearer they are to the trunk; but the lateral branches of horizontal roots are the less vigorous the nearer they are to the trunk. In the former case, the increased luxuriance is, perhaps, owing to the easy access of oxygen in the upper divisions; but in the latter case the increased luxuriance of the more distant divisions is not so easily accounted for, if it is not to be attributed to the more ample supply of nutriment which the fibres meet with as they recede from the trunk, particularly if you suppose a number of them lying horizontally, and diverging like the radii of a circle.

But the direction of roots is so liable to be effected by accidental causes, that there is often but little uniformity, even in roots of the same species. If plants were to be sown in a soil of the same density throughout, perhaps there might be at least as much uniformity in the figure and direction of their roots as of their branches; but this will seldom happen. For if the root is injured by the attacks of insects, or interrupted by stones, or earth of too dense a quality, it then sends out lateral branches, as in the above cases; sometimes extending also in length by following the direction of the obstacle, and sometimes ceasing to elongate, and forming a knot at the extremity. But where the soil has been loosened by digging, or otherwise, the root generally extends itself to an unusual length. This, Du Hamel has illustrated by the following cases:—If a trench is opened at a small distance from a young tree, and immediately filled up again with loose earth, the roots which enter the trench will continue to follow its direction, and will send out but few lateral branches. And if part of the trench is filled up with earth of a superior quality, or with earth mixed with manure, the greater number of divisions will be directed to that quarter. Trees, also, that are planted by the banks of a river extend their branches chiefly in the direction of the river, without sending out many lateral branches. Where the earth is very loose, the roots are generally weak; because, having no obstacle to overcome, they have extended to an undue length. Hence the roots of plants vegetating in pots, but especially in water, are the weakest; but where roots have some considerable obstacle to overcome, they will often acquire a strength proportioned to the difficulty: sometimes they will penetrate the hardest soil to get at a soil more nutritive, and sometimes they will insinuate their fibres into the crevices even of walls and rocks, which they will burst or overturn. This, of course, requires much time, and does much injury to the plant. Roots, consequently, thrive best in a soil that is neither too loose nor too dense.—(*Keith's Vegetable Physiology.*)

The distance to which the roots of a plant extend is much greater than is usually imagined; and one reason of the stunted growth of plants in a poor soil is, that the sap collected and elaborated by them has to be expended in the extension of the roots, which have to be larger in proportion as the pasturage near home is scanty. An Acorn, accidentally deposited on a wall, produced a young Oak; but this made no progress until its root had descended the whole height of the wall, and had penetrated the soil at its base.

In deep, poor, siliceous soils, we have traced the roots of trees from twelve to fourteen feet perpendicular without reaching their termination. Those of the Canada Thistle, seven feet; common Fern, eight feet; Wheat, thirty inches; Oats, twenty-four inches; Potatoes, eighteen inches; Quions, twenty inches; Carrots, Parsnips, and Beet, two feet.

Mr. Cary Tyso, the well-known florist at Wallingford, thus relates his observations on the distance to which the roots of Mignonette will extend:—"I was invited by a gentleman of this town to inspect a plant of Mignonette, which had penetrated through several courses of bricks, and descended far into a wine-cellar. Over the cellar, which was outside the dwelling-house, was a brick pavement; between the joints of which Mignonette seed had been sown from year to year. A plant or two, where there was more soil, grew more vigorously than the rest, though not so luxuriantly as it often does in a common border. The roots of these plants had penetrated through eighteen inches of brickwork; and some of them were hanging inside the arched roof of the cellar, nourished by the damp atmosphere only. A few more favourably situated were attached to the end wall of the cellar, and had descended five feet five inches down the wall into the decaying sawdust of the wine-bin. Others were beautifully

spread over the wall, with a thousand branching rootlets bespangled with minute crystal-like damp-drops, and extending over a space of five feet in width. It was difficult to trace the brittle roots in the sawdust; but I measured some upwards of seven feet below the surface of the brickwork in which the plants were growing."

The distance to which roots will travel, and their tenacity of life, render them, often, very obnoxious to the gardener. Thus the common Couch Grass (*Triticum repens*), is the most troublesome of weeds, for every fragment of its far-spreading-roots will vegetate; and the Sweet-scented Coltsfoot, the Periwinkle (*Linca*), and Lemon Mint, are no less to be avoided, for the same cause renders them extremely difficult of extirpation, and they never can be kept within moderate bounds. Yet these creeping-rooted plants are not to be condemned without exception: for, whoever has grounds under his care bordering upon the sea-shore, the sands of which are troublesomely light and shifting, may have them effectually bound down by inoculating them with slips of the roots of these grasses, *Elymus arenarius*, *Carex arenaria*, and *Arundo arenaria*.

The roots of plants, unless frozen, are constantly imbibing nourishment, and even developing parts; for if the roots of trees planted during a mild winter be examined after an interval of a few weeks, they will be found to have emitted fresh radicles. The food they imbibe is slowly elaborated in the vessels of the stem and branches, and there deposited.—J.

(To be continued.)

NET-PROTECTING FRUIT BLOSSOMS—THE ESPERIONE GRAPE.

FOR protecting the blossoms of early fruit, allow me to speak with all praise of netting. Ascend a ladder, and drive the ends of some stoutish poles, slopingly and firmly, four feet apart, into the border, about four feet from the wall, and let their topmost ends come to rest immediately under the coping. Drive a nail as high as possible in the front face of each pole, and hitch on to the nails three layers of old mended herring nets; strain these layers of netting down the poles, and fix them there with more; hitch three other layers beneath, and on to the nails last driven, and secure them as above; when it will prove a sufficient protection for any wall trees then in bloom.

These layers of netting may be taken off gradually as the season advances; the last layer, along with the poles, being removed when the majority of the fruit has gained a quarter of an inch in diameter.

I have tried many methods for protecting blossoms; and one in which I thought I had done it, in the year before I was made acquainted with the net system (1850), ended so disastrous, that I am induced to publish it as a caution. I remember I wished particularly to preserve the blossoms of the only two established trees I then had, and they were growing against the house. Of course, I was reading and digesting Mr. Errington's articles—in effect so much so, that I became nerved sufficiently to rush into print for the first time. Well, my trees were Apricots, eighteen feet high; so I procured Ash poles in proportion, and with tackling that would have done honour to the mainsail of a ship, made so to act that some old moreen curtains could be drawn up and down at pleasure; but the action of the wind so belied the dense material up against the trees, that when storms prevailed they kept me dancing attendance night and day; and, truly, if any place could honestly claim to be dubbed the Temple of the Winds, surely I maintain it is this.

One stormy morning—and the Fates having ordained me to be some one hundred miles from my *protégés*—the wind blew the concern bodily away, and part of the trees along with it, fracturing a stone window-sill, and frightening two female domestics nearly to their wits' end.

Now, several thicknesses of netting would not have been liable to this mishap: they would have let the wind through sufficiently, kept off the frosts effectually, admitted the sun without the bother of drawing up and down the sails constantly—all of which I have since proved satisfactorily, and never more to the purpose than this present season of fine early bloom, sharp frosts, and cutting winds. In fact, this very day (March 30th) we have a heavy fall of snow, which, as it alights, is caught upon the nets, forming in front of the trees an almost transparent canopy, beneath which the infant fruit and blossoms remain quite secure; and if we get

20° of frost to-night, I shall not feel disturbed in my slumbers on their account.

I gained this hint about the netting on the year after the land-wreck above detailed, from the late Mr. Oldaker, of Stoke Pogis—my last visit, and last sight of him. Poor man! he was bothered exceedingly at that time, with the *Oidium Tuckeri* upon his Vines. His houses were none of the fewest—nothing less than miles of glasses would content him; but Vines in such a plight! If it had not been for the *Esperione* he could scarcely have mastered Grapes enough for the table. Thou estimable Grape! I have had my admiration upon thee for twenty-five years. I first cast sight upon it at Downton Castle, if my eyes did not deceive me, although I was then but a stripling, and a novice to gardening. Along with the Rector—(most knowing in the science of crossing with cocks and hens, which, at that time, gained us a great deal of contempt from our neighbours, albeit the procedure is not now thought quite unworthy the consideration of a great many good and worthy people)—when I saw the Grape at the late Countess of Sefton's, I was about planting Vines; and the circumstance of its having escaped the disease, in the midst of infection, caused me to make up my mind for it at once. Later experience, as to its cropping and excellent wine-making properties, has not caused me to regret my choice, and induces me now to toss the gauntlet in its favour against all hardy comers.

I advise you, readers, to prove it at all points of the compass; and by the time their Vines are in bearing I hope the Editors will have sat in judgment upon the Rector's *Esperione* Grape wine, and have received my manuscript how to make it.—UPWARDS AND ONWARDS.

QUERIES AND ANSWERS.

ZINC PLATES FOR COVERING VINE BORDERS.

"Have any of your correspondents used, or seen used, zinc sheeting for covering Vine borders, instead of wooden shutters? and if so, would they be kind enough to say how it answers? If it is liked better than wood? and the price per superficial yard? and if there is anything deleterious in the metal that would be injurious to the Vines or soil? the length used? and how the angle is given to it, so as to throw off the wet? Some information upon this subject would, I think, be interesting to many of your readers, as well as myself."—L. J. A.

[We have never seen zinc so used; but there is nothing to prevent its use, so far as injuring the plants is concerned. We have tried nothing that has not thrived in zinc pans. We presume that, for such purposes, you would have the sheets fastened to wood, in the way of light rafters, in order that you might lift off the sheets without straining them: and, if so, the only thing to consider would be the expense of wood and zinc; for the latter then would answer rather the better of the two, and they could be used for other purposes—as respects shelter and covering—the same as wooden shutters. We saw wooden shutters the other day that cost about 6s. each, painted, &c., that had been in use for covering frames and pits for eight years, and were as good, seemingly, as the first day they were used. If zinc were not painted, we should expect it to be oxidised through in that time. If painted a light stone colour, we could not say how long it would last. If painted of a dark colour, the extreme heat of the sun is apt to make the metal somewhat brittle. Will any other reader give more definite information?]

CROCUSES FOR GEOMETRICAL BEDS.

"What kind of Crocuses would be best for twelve small beds, which form an oval, and a small oval in the centre, with a wire basket round; is opposite a bay window, with aspect south-west? What colours are advisable, and how to be arranged to be most effective? Would it do to plant the Crocuses before turning out the greenhouse plants, planting them very deep? The oval bed is six yards long, and about nine or ten inches of turf between each of the surrounding beds. There are two Irish Yews growing in the centre of each round bed; and the oval between is intended for a raised wire basket for mixed flowers. What greenhouse plants would look best for the beds, and how should the colours be arranged?"—A LADY SUBSCRIBER.

[The Crocuses must not be planted deeper than two inches; and when a whole bed of them is planted, they must be lifted

before the bedding plants are put in. But if the Crocus is confined to one or two circles round a bed, the bulbs need not be removed or disturbed by the bedders. Your group of beds is very beautiful, and very easy to plant. Make the bed which is the nearest to the centre of the best window the key bed—the one to plant from. In that bed put the colour you like best in summer, and *Sir Walter Scott* Crocus in winter; then work the colours, in opposite match pairs, all round. Say in Crocus *Sir Walter Scott*, a feathered white, 1; then a purple on each side of it, 2 and 3; then 4 and 5 white; 6 and 7 yellow; 8 and 9 white; 10 and 11 purple; and 12 yellow. All the whites may be *Sir Walter Scott*, or clear white, of which *Queen Victoria* is the best in our soil; but it will not do everywhere. Bedding plants are done just the same. Any colour you choose in No. 1, scarlet, white, or purple Verbena; then match pairs, and any two kinds or shades of scarlet, pink, or purple, may be made to agree by putting an edging of white to the beds near one another. But there is plenty to choose from without jarring the colours.]

SPRING FLOWERS—TRITELEIA UNIFLORA.

"Will you allow me to ask '*Microsomis*' (Vol. XXI., p. 388), the colour of his *Triteleia uniflora*? The *Collage Gardeners' Dictionary* says *uniflora* is blue. Mine is white, with delicate pencilling at the back of the petals. I recommend to his notice, as among the best of the hardy spring flowers, *Sanguinaria Canadensis*, and the blue Apennine Wood Anemone. They are both very beautiful, though very little grown."—H. N. E.

[The *Collage Gardeners' Dictionary* is correct in stating that the flowers of *Triteleia uniflora* are blue. We have now before us the coloured portraits of them in the *Botanical Register*, t. 1921. The description there given is—"Rather a pretty bulbous plant, native of Mendoza, where it was originally found by Dr. Gillies. Its flowers have a delicate sky-blue tinge; but, unfortunately, the plant smells powerfully of garlic." Your plant may be a white sport, or may have been grown in deficient light.]

SMALL FRAGRANT PLANTS FOR A BOUDOIR.

"Will you give a list of small, sweet-scented plants, to be grown in nothing larger than a quart pot, and suitable for a wire stage in a lady's boudoir?"

"Are seedlings of the *Dielytra spectabilis* of any value, as I perceive them coming up in the open ground, where some old plants grew and flowered last year?"—L. J. A.

[Jonquils, Narcissuses, Hyacinths, and Cyclamens, in winter and spring. Mignonette, Lily of the Valley, Otaheite Orange, Jasmine, and Tea Roses, in spring and on to summer. Geraniums—such as *Citroderum*, *Prince of Orange*, *Quercifolium*, *Lady Plymouth*, *Fair Helen*, &c., along with Mignonette, in summer and autumn. It would have been as well if you had told us the means at your disposal, as, in proportion to these, the plants could be varied.

The *Dielytra* seedlings will be valuable in proportion as you esteem the plants. If pricked out carefully, they may be expected to bloom the second year. Are you sure that the seedlings are true?]

THE LONDON HORTICULTURAL SOCIETY.

A FORTNIGHT ago we announced the sale of the HORTICULTURAL SOCIETY'S House, No. 21 Regent Street, for the sum of £2960. The amount realised is certainly less than the property was valued at, as one of the assets of the Society; but it was, nevertheless, its true value, and therefore there can be no cause for regret. The propriety of the course pursued by the Council in this matter is at once obvious. The house in Regent Street, as we have frequently urged, was a drain on the resources of the Society, without any corresponding return in value accruing to it; and all well-wishers of the institution will rejoice in a step which enables the Council to clear off so much of their debt, and reduce very considerably their annual expenditure. Would that they had adopted this course long ago!

But, dark and dismal as the conditions and prospects of the Horticultural Society have long been, we have ever seen, in the far distance, a ray of light that might, one day, beam forth and lighten the darkness. We never altogether despaired, if we could but get those in authority to act with that energy and

liberality of spirit which are, in all matters, at the present day, necessary to success—to grapple boldly with their difficulties—to forget all their former grandeur and stereotyped notions—and to accommodate themselves to the requirements of the age and their own altered circumstances. We say, if we could but get them to act thus, as we have frequently pointed out to them they should do, their position might have been very different to what it is, and there would be every probability of success. Still, “it is never too late to mend;” and it gives us a certain degree of pleasure to see symptoms of divergence to a course that may yet raise the Society to that position of usefulness which it once enjoyed. We have been informed that the intention is to lop off whatever tends to unremunerative expenditure, and to confine the operations of all the departments to what will alone be practical and useful. The apartments that have been secured in St. Martin’s Place are ample for all the purposes of a town office; and the expenses attending them will be infinitely less than were incurred in keeping up the house in Regent Street. The Garden is to be retained, and very properly so; but whether it is to be preserved in its present condition is a question yet to be decided. What the Horticultural Society wants is an experimental garden—a garden of instruction—where the scientific, the amateur, and the practical gardener can go and be benefited by the visit. It is not broad gravel walks and stuccoed vases, closely-cropped lawns and landscape effects, that induce country gentlemen and their gardeners to visit Chiswick. They have as good, and, many of them, far better and more extensive at home of their own. It is for information and instruction they go—for seeing the newest and best modes of training and cultivating their fruit trees—for ascertaining the merits and characters of culinary and decorative plants—and for deciding on the most approved garden structures, and the modes for heating and ventilating them. These are the inducements that are to attract the Fellows and the public to Chiswick.

It is, therefore, a hopeful symptom to hear that the Council have taken into consideration the desirableness of appointing to the Garden a Superintendent of Experiments, who shall apply himself to carrying out the objects which we have just mentioned. If such a person be appointed, who has the confidence of the gardening community—one already possessed of a familiar acquaintance with the garden plants and fruits already in cultivation; endowed with the faculty of observation and discrimination, and with the ability to prepare creditable reports on the results of the experiments entrusted to him;—if such a man be appointed, we entertain no fear for the future of the Horticultural Society.

HARDY HERBACEOUS PLANTS AND THEIR NEGLECT.

Few things have more excited the regret of the aged cultivator of flowers, than the neglect to which he often sees the fine class of herbaceous plants subjected. Some obscure place amongst shrubs, or where nothing else will grow, is alas! thought a place good enough for these once-highly-prized ornaments of the garden. The arbitrary dictates of fashion, which exercise so much influence on society, whether in the article of human dress, or a dress garden, and too often, it is feared, regardless of good taste in both cases, has, nevertheless, consigned the many garden favourites of bygone times to an unworthy neglect. The fashionable gardening of the present day being more the sudden creation of an artificial picture, which, when once realised, is not expected to change any more during the season; although it must be admitted, that one half the season is over before anything whatever is effected. In plainer terms, a set of flower-beds in accordance with the prevailing custom of using them, remains empty, or nearly so, all the winter and spring; and up to the middle or end of June there is but little show of flower on them. After that time flowers become more plentiful; but the first bloom foreshadows the rest, there being no change—the appearance in September is the same as in July. Now, I do not find fault with this—on the contrary, I admire it; but I cannot bring myself to the conclusion, that it ought to usurp to itself the whole of the floriculture of the present day. And I claim a greater share of attention for the much-despised herbaceous plants than they often receive; for, at all times of the year, they have something to present us with.

The Christmas Rose ushers in the year, followed quickly by the Winter Aconite, and bulbs of various kinds; while in March we have the various families of Primula, Hepatica, Iberis, Arabis, and

many others; which are followed, in quick succession, by others still more showy. In fact, the flower garden would present but a dull aspect, were it not for herbaceous flowering plants during the cheering months of April, May, and June; and, even in the after-summer months, the herbaceous border supplies many a useful appendage to the bouquet maker, which might be looked for in vain amongst the more delicate occupants of the more fashionable flower-beds. Spikes of Delphiniums, and other blue flowers, have few substitutes in the parterre; while, for variety and character, many of them are wholly unapproachable by their more delicate brethren. But, I believe, this is so well known, as to require no further comment on my side. What I want is, to see more room given to this interesting section; and, by a careful selection of the various species our gardens are now furnished with, a greater show may be made with these than many are aware of. Besides which, an herbaceous border has the important advantage of changing its character as the season advances; and, not like a bed of Verbenas or Geraniums, remaining the same in October as they were in June—thereby giving the cultivator or master no variety. On the contrary, there is always something fresh appearing amongst herbaceous plants—flowers of one hue dying off, on being succeeded by others of a different tint, until the season is over; and, by general consent, all parties agree to a suspension of floral display in December, in order to give more zest to the first blooms of the new year. That these are not slow in forthcoming has already been shown, and others are quickly in their wake.

I am led to make the above remarks in consequence of the total neglect to which hardly herbaceous flowering plants, as a class, have fallen. Gardens of large extent, where bedding plants are put out by the thousand, seem not to have a spare corner for their older and equally legitimate occupants of the flower garden. Once last summer I visited one of the largest private flower gardens in the kingdom; where, amongst other things done on an extensive scale, I was told they had turned out seven thousand *Golden Chain* Geraniums,—a fact I had every reason to believe,—as well as other kinds still greater in numerical strength. I did not see a single bed or border devoted to this much-neglected class; although the grounds, which were mostly interspersed with flower-beds of one kind or other, extended over some sixty or seventy acres. I merely mention this as an example how far the prevailing fashion of treating flower-beds has been carried to the extreme. That a re-action will take place I have no doubt, and our old friends will be, to some extent, reinstated in favour. But what I now ask for them is, more attention than they now receive; and, what is equally important, a place to themselves. I do not ask this to be the most conspicuous in all the grounds; but one not overhung by trees or shrubs, and one where the soil is good and deep.

One of the best herbaceous borders I ever remember seeing was in Herts. The proprietor and his gardener were amongst the most successful cultivators of the Rose. On the lawn, facing two sides of the mansion, large beds of that popular flower were scattered about; while a series of smaller beds nearer the house were, in the summer, gay with Verbenas, and other flowers of that kind. The lawn extended over several acres, and on one side receded from the mansion; at the bottom of this side an herbaceous border was formed, facing the mansion, and running parallel with the boundary of the lawn; a belt of shrubs and trees concealing some object behind. This border, if I remember right, was several hundred feet long, and about twenty-five feet wide. A wire trellis about six feet high forming the back, against which climbing Roses were trained; and a back border, six feet wide, and a wall were behind this. So that the herbaceous border, so called, was quite clear of the shrubby-belt behind; and it being, as I say, at the bottom of a gentle declivity, it is needless to say the soil was of the best description; and the plants, being allowed sufficient room apart, grew and flowered with a luxuriance not often witnessed elsewhere. The appearance this border usually presented from the high ground, a little way off, was good in the extreme—there being always something showy in flower; and care had been taken to allow only a proportionate number of each species, so as to keep up the succession: but there was always a greater number of the more showy of each kind. In fact, much discretion was used in that respect; and the healthful appearance they presented proved that their treatment was all that could be desired. And even in the gay summer months, when Geraniums, Calceolarias, and such like, were at their best, the more varied forms of the Delphiniums, Aconitums, Phloxes, Catchflies, Lupinuses, *Statice latifolia*, and other plants, threw a charm over the herbaceous border which

the others did not possess. Altogether, it was generally regarded as the most imposing feature of the place.

Are there not many places where the same may be done in like manner? Herbacons plants, as a whole, require less care than any other section; while their appearance and long-continued services entitle them to the best place. Besides which, the acquisitions of the last few years have added much to the store of older plants in this class. Phloxes have been improved and multiplied; as, likewise, have Delphiniums, Pentstemons, and other things; while many new ones have been added. Old ones, of course, cannot be discarded without due consideration; and some of the old kinds are amongst the most beautiful still, as—double-purple and white Rockets, Catchflies, *Aconitum Virginicum*, *Statice latifolia*, and the Golden Alyssum (*Alyssum saxatile*). I know nothing more showy or useful than the latter where it does well, and there are others equally so.

It is proper here to observe, that a class of plants presenting so much variety cannot all be expected to thrive alike on the same soil—Phloxes requiring a much moister soil than many others; while the pretty *Spiræa Japonica* seems to do best in a peaty soil, with a fair share of moisture. On the other hand, some require a dry soil, as the *Alyssum saxatile*; but the majority like a deep, rich, garden loam, where the roots have free scope to roam, and escape the droughts of summer, and thereby prolong their blooming; while some little allowance could be made for those of an opposite character. But, as the majority are tolerably free feeders, their welfare might be regarded as paramount; and others, if they did not thrive so well, might be excused, when there are so many ready and willing servants to do duty for so long a period as ten or eleven months in the year. I trust some one will undertake to resuscitate this neglected class, and again place it on the footing it stood half a century ago. I do not think, with the recruits it has received during that time, that its appearance in the gay lists of floral gala days will be much behind its more fashionable competitors; while, for at least five months in the year, it will be decidedly superior. Lists of the most showy kinds could easily be given; but, at the present time, it is unnecessary, as everyone has his own especial favourite; besides which, certain soils favour the growth of some plants more than others. Enough has been said to urge on all those having the means to endeavour to restore this meritorious class of plants to their proper position in the floral world.—J. ROBSON.

NEW AND RARE PLANTS.

BEGONIA XANTHINA, var. *LAZULI* (*Lapis-lazuli variety of Yellow-flowered Begonia*).

Mr. Linden, of Brussels, has introduced this variety, and many others also of great beauty, from Assam. The flowers are yellow, partly tinged with red, and the large foliage, its chief beauty, is beautifully coloured with blended crimson and green, with a blue metallic lustre. "It deserves a place in every ornamental stove."—(*Botanical Magazine*, t. 5107.)

VRIESIA PSITTACINA, var. *RUBRO-BRACTEATA* (*Red-bracted variety of Parrot-flowered Vriesia*).

"Native of Brazil, and a very great ornament to our stoves, by bearing its handsome scarlet and yellow spikes of flowers in the winter."—(*Ibid.*, t. 5108.)

NEPENTHES AMPULLARIA (*Ampullaceous Nepenthes, or Pitcher-plant*).

Native of the Singapore Forests, and other places in the vicinity. Flowers in August. Pitchers small and unattractive.—(*Ibid.*, t. 5109.)

HOWARDIA CARACASENSIS (*Caracas Howardia*).

It is a native of Caracas, in Venezuela. "A very lovely stove plant, with gracefully-drooping panicles of flowers, the beauty of which is very much increased by the remarkable enlargement of one of the teeth of the calyx into a heart-shaped, stalked, deep, rose-coloured, leaf-like lobe, like a similar development (except as to colour) in the well-known *Mussaenda* of our stoves."—*Ibid.*, t. 5110.)

STEPHANOPHYSUM BAIKIEI (*Dr. Baikies' Stephanophysum*).

One of the plants collected by Mr. Barter during the present Niger expedition. Named after Dr. Baikie, commander of the

expedition. A stove sub-shrubby plant, with terminal panicles of scarlet flowers, blooming in winter.—(*Ibid.*, t. 5111.)

LINUM PUBESCENS, var. *SIBTHORPIANUM* (*Sibthorp's variety of Hairy Flax*).

It has also been called *Linum piliferum*, *L. Sibthorpium*, *L. decoloratum*, and *L. hirsutum*. A pretty, hardy annual, native of Mersina, Cilicia, but the flowers very inferior in colour to those of *L. grandiflorum*.—(*Ibid.*, t. 5112.)

A NEW PINE APPLE.

I HAD occasion to call at Mossley Hill, Aighburgh, near Liverpool, to see the gardens of A. Fairrie, Esq., famous for a fine collection of orchidaceæ. The gardener asked me to go and look at a new seedling Pine they had raised. We had to go through a part of the pleasure-ground; and I, therefore, thought this new Pine was one of the Conifer tribe. "Where did it come from?" I asked. "It is a seedling," was the answer. "Is it from the Himalaya Mountain, or from Mexico?" was my next query. That led to the reply, "It is not a Conifer, but a *Pine Apple*." On arriving at the pinery it was shown to me in fruit. One was nearly at its full size, and had the appearance of a well-swelled Enville. The flavour, I was told, was excellent. The grand peculiarity, however, is the very small room each plant occupies. The one so nearly ripe grew on a plant whose leaves covered a space only fifteen inches in diameter. All the plants in fruit were on equally small plants; so that, in a given space, at least double the number of fruit may be produced. The crowns on the fruit are all small; so that the purchaser of the fruit will not have to pay for a large heavy crown which he cannot eat. Altogether, I think this is a decided and desirable acquisition to our sorts of this noble fruit. I understand Mr. Fairrie has put the stock, which is large, into somebody's hands to send it out to the public; so, I suppose, it will soon have a name and be advertised.—T. APPELEY.

HOW TO PROPAGATE *LINUM GRANDIFLORUM RUBRUM*.—The beginning of March put the seed into a tumbler half full of water; put the tumbler on the flue for forty-eight hours; temperature in the glass from 20° to 30° Reaumur. Then clean the seed with fine white sand, so that the slimy parts disappear, without hurting, however, the now-softened grain. Apply fresh, dry sand till the seed is clean. Sow in a pot one part loam, one manure, one pure-white river sand, and cover two lines deep. Put the pot again on the flue, and water with tempered water whenever necessary. When one inch up, pot into one-inch-and-a-half pots; when five inches, in three-inch pots. A fortnight after, let them go to the cold house; give them fresh air; take them out the middle of May, and they will stand well in the open air.—(*American Gardener's Monthly*.)

TRADE LISTS RECEIVED.

A Catalogue of Bedding and other Choice Flower-Garden Plants; and *A Descriptive Catalogue of Fruits Cultivated and Sold by John Scott, Merriott Nurseries, Crewkerne and Preston Road Nursery, Yeovil, Somerset*. Both of these are good catalogues of the articles they profess to enumerate. The latter contains a very excellent list, with descriptive remarks of fruit trees, and we particularly observe a good collection of the best cider Apples.—*Catalogue No. 5, for 1859, of Bass and Brown, Nurserymen and Seedsman, Sudbury: being Superb Achimenes and Gloxinias, and Bedding Plants*. This is a full list, containing a numerous variety of all these plants, with descriptions of their various characters.—*Catalogue of Florists' Flowers, Green-house Plants, Conifera, Bedding Plants, &c., by W. W. Johnstone, Broughly Ferry and Dundee*, is a respectable list of these articles, judiciously selected and well arranged.

TO CORRESPONDENTS.

ORNAMENTAL GRASSES FOR BOUQUETS (*F. W. S.*).—For cut flowers in vases, *Briza maxima*, and *Stipa pennata*, are the best. For small hand bouquets, *Lamarkia aurea* is very useful.

APIARIAN SOCIETY (*Apiarian*).—This has no connection with the British Apiarian Society suggested in our columns.

POLYANTHUS SEEDLING (W. D. M., York).—It is very inferior to many in cultivation.

NETTING FOR FRUIT TREES.—"I notice in your number for March 29th, some excellent remarks respecting the superiority of netting as a blossom protector. I concur in all that your correspondent says on the subject, except the recommendation to buy old netting, and use two or three thicknesses. Old netting will be more or less broken; and if used as recommended, will cost more than new net, where *one thickness only* is required."—T. A. T.

AQUARIUMS (W. Armstrong).—We shall have some further information shortly.

DIOSCOREA BATATAS (A.).—There is no need to start them in heat. Large sets planted in ground trenched three feet deep, with some decayed dung turned in at the bottom, and the soil light but moist, will grow this vegetable admirably. We plant at the end of March.

NAMES OF PLANTS (M. Westcott).—Your plant is the *Andromeda polifolia*, the Polium-leaved Andromeda, the Marsh Andromeda, the Wild Rosemary, the Poly Mountain, the Marsh Cistus, the Moonwort, or the Marsh Holy Rose. It is found wild in many counties in England—in Somersetshire, not far from the beginning of the Mendip Hills, near Bath. (W. Clarke).—Yours is *Daphne Dauphinii*, one of the best of the hardy kinds. It does well against a wall. (Andrew Robertson).—The plant you are told is a Saxifrage, is so. It is the *Saxifraga crassifolia*, the Thick-leaved Saxifrage. A very pretty, hardy, border plant. Sometimes its flowers get injured by late frost in the spring, unless protected in some way. The other pretty flower with blotched leaves, is the Dog's-tooth Violet, *Erythronium Dens-canis*.

THE POULTRY CHRONICLE.

POULTRY SHOWS.

MAY 25th and 26th. BEVERLEY. Sec., Francis Calvert, Surgeon, &c. Entries close May 3rd.

JUNE 1st, 2nd, and 3rd, 1859. BATH AND WEST OF ENGLAND. At Bathstaple, Devon. Director, S. Pitman, Esq., Rumwell Lodge, Taunton. Entries close May 10th.

JUNE 6th, 7th, and 8th, 1859. GLASGOW. Sec., Robert McCowan, 17, Gordon Street, Glasgow.

JULY 1st, 2nd, 4th, and 5th. SHEFFIELD. Wilson Overend, Chairman. Entries close the 15th of June.

N.B.—Secretaries will oblige us by sending early copies of their lists.

RARITY OF ROUP.

THERE is one advantage resulting from the poultry movement which is not sufficiently noted. We allude to the improved health and constitution of fowls. Those who were conversant with Shows at their commencement can recollect, with pain, pen after pen of birds disqualified, and afterwards removed, because they were rousy. Eyes closed, tails drooping, wings down, and hard breathing, varied every now and then by the "ghost of a caw." It was common for winners to be missing the second day of the Show. They were represented by a ticket, on which was written, in some instances, "removed," "diseased." In others, "roupy." Secretaries can tell how they were tormented by owners for permission to remove suffering birds; by exhibitors who demanded that their sound ones should not be exposed to the contagion of diseased neighbours. Peneilled Hamburgs enjoyed an unenviable notoriety in this particular. Some pretended that roup was their natural state; and it seemed true, till Mr. Areher took them in hand. Mr. Coleridge bred sound Polands. Cochins and Spanish enjoyed immunity from sickness, as they always have done. The pluck of the Game was proof against disease, or, at least, like a dandy with a pinching boot, or a young lady too tightly laced—pluck would not let them show it. Dorkings were often removed.

Nothing of the sort is seen at Shows in the present day. We have constantly gone round Birmingham or the Crystal Palace, without seeing a rousy fowl. Now, admitting that many exhibitors understand the management of their birds better, and that the arrangements at the Shows are more favourable to the health of the competitors than they were formerly, still that would not sufficiently account for the difference. The truth is, the attention that has been paid to the subject has borne its fruit, and the birds have improved. At every Show there are those who exhibit for the first time; and their birds are sound and hearty, because they have the opportunity of buying such—not from the experience of the owners.

This is a great result, and we confidently look forward to the day when roup will be a mere matter of history. Dirt and bad feeding caused sickness. It was latent while combated and kept down by fresh air and liberty; but the confinement of a Show developed the seeds of disease that lurked in the system. At one time one rousy bird immediately infected a yard. Now, clever

men, both as amateurs and medical practitioners, do not hesitate to say it is not contagious. From experience and experiment we say—we dreaded it once, we now think lightly of it.

BRAHMA POOTRA CHARACTERISTICS— DEFINITION OF COMBS.

"Give me a full description of what Prize Brahmas ought to be. Light and dark-peneilled respectively.

"A glossary of the technical terms would be useful to novices such as 'Rose Comb,' 'Pea Comb,' &c."—W. H. ANSLOW.

[The shape and points of Brahma Pootras are now so thoroughly understood, that any description that is required can only be as to colour and comb.

Light Brahma Pootras should have a white plumage, with black flights and tails; and the hens should have black-striped hackles. In good specimens the under plumage should be dark. The cocks are not marked exactly in the same way. There is not the same distinctness of colour: the hackle, saddle, and tail are clouded; and the breast often somewhat spotted—this latter is not desirable. The dark hens should be peneilled all over the body with distinct grey markings, closer, but like those on the feather of the Silver cock pheasant. The cocks should have dark tails, breasts, and thighs, light hackle and saddle; the breast should be spotted with white. In both colours the legs should be yellow and well feathered to the toes. They may have single combs, barely medium size, and well serrated, or pea combs. These latter are like three compressed into one; that in the centro being higher than the others. The serrations of each should be plainly seen.

A few words on combs may not be out of place now that they have been so much cultivated and encouraged. The great falling single combs of *Dorkings*—the rose combs of *Hambros*, closing the nostrils, almost hiding the beaks, and threatening to shut out light from the eyes—the thin, flabby, roll combs of *Malays* are all caricatures. A single comb, save in some Dorking, and all Spanish hens, should be upright, firm, and well serrated. A rose comb should be full of points, well over, but not on the beak sufficiently to lose shape; turned upwards behind, and sitting jauntily on the head. It should have no hollow on the centre; and it should sit firmly, inclining to neither side. A Malay comb is *sui generis*. It should be hard, flattened on the head, and have a rough skin. It should neither project nor rise like others.]

SCRAPS OF NATURAL HISTORY.

A CORRESPONDENT writes—"A French Partridge came astray a few months since. It lives in the dining-room, feeds out of my hand, and lies with my dogs before the fire. It is amusing to see it walk over them."

Another says—"I am very glad to see you have begun to notice little things in natural history. Many of your readers will be pleased to contribute, and still more to peruse them. Some years since, I built an outhouse in my yard, which was a receptacle for gardener's tools and odds and ends. A pair of Swallows built in one corner of it. Soon afterwards, my servant put up a knifeboard in it, and cleaned the knives and shoes there. It is not a lofty building, and the nest was just over his head. I gave him strict orders not to interfere with the birds; and they have built there four years in succession."

A third writes—"I have often heard it said, that it is impossible to keep a tame Hare. I have one five years old. It was caught when very small, and reared by means of a tobacco-pipe. The small end was put in its mouth, and milk poured into the bowl. It sucked it readily; and many an unfortunate, cut out by the mowers, might be saved in the same way."

LONDON MARKETS.—APRIL 11.

POULTRY.

There is an unusual dearth of really good young fowls. Out of dozens, it is difficult to select a few faultless. The unusually mild winter has caused the late to get out of season before the early are ready.

Each—s. d.	s. d.	Each—s. d.	s. d.
Large Fowls.....	6 0 to 7 0	Ducklings.....	3 6 to 4 0
Smaller ditto.....	4 0 „ 5 6	Guinea Fowls.....	3 0 „ 3 3
Chickens.....	3 0 „ 4 6	Pigeons.....	0 9 „ 0 10
Cock Turkeys.....	9 0 „ 10 0	Rabbits.....	1 4 „ 1 5
Goslings.....	7 0 „ 7 6	Wild ditto.....	0 8 „ 0 9

WEEKLY CALENDAR.

Day of Month	Day of Week	APRIL 19—25, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon R. and S.	Moon's Age.	Clock after Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
19	Tu	<i>Leptospermum sericeum.</i>	30.141—29.933	63—30	E.	—	58 af 4	1 af 7	27 10	16	0 51	109
20	W	<i>Leucadendron floridum.</i>	30.065—30.030	70—31	N.	—	57 4	2 7	38 11	17	1 4	110
21	Th	Sun's declin. 11° 46' N.	30.200—30.140	75—32	E.	—	54 4	3 7	morn.	18	1 17	111
22	F	Good Friday.	30.364—30.260	77—40	S.E.	—	52 4	5 7	35 0	19	1 30	112
23	S	<i>Oxalis rosea.</i>	30.306—30.146	76—36	E.	—	50 1	6 7	20 1	20	1 42	113
24	SUN	EASTER SUNDAY.	30.089—30.007	68—39	S.W.	—	48 1	8 7	52 1	21	1 53	114
25	M	EAST. MON. ST. MARK. PRINCESS. [ALICE MAUD BORN.]	30.013—29.931	66—38	E.	.10	46 1	10 7	15 2	22	2 4	115

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 58.5° and 36.9°, respectively. The greatest heat, 77°, occurred on the 19th, in 1854; and the lowest cold, 18°, on the 24th, in 1854. During the period 132 days were fine, and on 92 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

KEEP the conservatory as cool by day as is consistent with the health of the plants. By such means they will remain longer in bloom, and will be more enjoyable for parties inspecting them.

CAMELLIAS.—Continue to encourage the growth of those that have done flowering by increasing the temperature, by frequent syringings, and by a liberal supply of water at the roots. If any have made their growth, and have formed their blossom-buds, they will require more light and less moisture for the future.

CINERARIAS.—To continue them in a healthy blooming state it is necessary to attend to them carefully, that they may not droop for want of water, nor be saturated with it. When the sun is powerful, slight shading is necessary for a few hours in the middle of the day, to prevent the blooms from losing their brilliancy; and plenty of air to be given when the weather is mild.

FUCHSIAS.—Having been treated with plenty of heat and moisture, they will now be making rapid growth, and will be fit to shift into their blooming-pots, using a light, rich soil for the purpose.

NEW HOLLAND PLANTS.—Top and syringe frequently all such plants as are growing freely. Stake and tie them as they may require.

PELARGONIUMS.—Continue to stake and tie the shoots that require it in due time. Some clear liquid manure (cowdung water, for instance) may be given to plants that are well established with roots and showing their trusses of bloom; and sufficient space to be given for each plant to develop its natural beauty. We would advise shading only when there is a fear of scorching from the usual sudden sunbursts of April weather. Ply the syringe every fine evening to refresh the plants, and to keep down insects, until the flowers expand, when syringing should be discontinued.

STOVE AND ORCHID-HOUSE.

The stove plants recently potted will now be making fresh growth. Allow no diminution of bottom heat, and keep up a warm, moist atmosphere. Give air when the thermometer indicates 90°. Continue to shift *Gesneras*, *Clerodendrons*, and other such free-growing plants, as they require it. The *Brassias*, *Cattleyas*, some of the *Dendrobiums*, *Gongoras*, *Peristerias*, *Phaiuses*, *Sobralias*, *Zygopetalums*, and other such *Orchids*, will now be growing freely, and will therefore require a considerable amount of atmospheric moisture. If the roof is covered with climbers, a little management in trimming them will obviate the necessity of outside shading, and will give an additional feature of interest to the house. The plants on blocks, or suspended in baskets, will require very frequent syringings to keep them in a healthy-growing state. Plants in bloom may be removed to the conservatory, or any other house with a drier atmosphere, to prolong their period of blooming.

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FORCING-HOUSES.

CHERRIES.—When they begin to change they will require free exposure to light, and abundance of air, to bring out their colour; and, at the same time, a diminution in the supply of water. Carefully examine all curled leaves, and destroy the grubs they contain. If the trees are very luxuriant, and are making strong foreright shoots, stop them to within a few buds of the main branch.

FIGS.—Give the trees in pots some clear liquid manure when they are swelling off. Stop the shoots at about six or eight inches, and thin out any useless shoots. Syringe and water freely.

MELONS.—Keep the vines thin, and stop regularly. Shade only in very hot weather. Water sparingly overhead. Plant out succession crops.

PEACHES and NECTARINES.—When the fruit in the early house has gone through the critical process of stoning, the final thinning should take place; the borders—if inside, or out, or both—should be copiously supplied with water; using liquid manure whenever a weak habit, from poor soil or over-exhaustion, shows it to be necessary. Syringings to be given twice a-day—early in the morning and at shutting-up time. The night temperature to be no more than 50°; but during the day it may range to 85°, if accompanied with air in liberal quantities.

PINE APPLES.—Lessen the moisture amongst the fruiting plants when they approach maturity. Shift and grow on the young stock in a moist atmosphere; admit air freely in fine weather; prepare beds, and turn out the plants, if preferred.

STRAWBERRIES.—They should be kept near the glass: temperature, 65° to 70° by day, and 55° to 60° by night; succession crops rather cooler. Reduce the water to those ripening. Support the stems, and thin the fruit where superior produce is wanted. Keep them clear of runners and decayed leaves, and give an abundance of air.

VINES.—Continue to thin the Grapes in the early houses: a few berries may require to be taken out of some of the bunches up to the time of their changing colour. Keep up a high temperature—about 75° by day and 60° by night: in later houses, where the bunches are in course of formation, it is a great object to bring them out well. In later houses, where the bunches are formed, or in bloom, let the heat be moderately increased, and admit an abundance of air at all favourable opportunities. Shift pot Vines often, and keep them near the light.

WILLIAM KEANE.

MESSRS. J. & J. FRASERS' NURSERY,
LEA BRIDGE ROAD, ESSEX, N.E.

TRAINS from Shoreditch to the Lea Bridge Station, which is only five miles out of London, run about twelve times a day. Five minutes' walk from the Station brings one to the corner of the nursery; and four hundred yards from that corner is the principal entrance. The soil is particularly well adapted for *Roses*, fruit trees, and the

finer nursery stock. Five acres of the best of the ground are devoted to Roses; and nearly five times as many acres are under fruit trees; the rest being full of a selection of the best nursery stock; and there is a world of glass, all kept in the highest style of London cultivation. The Messrs. Fraser have been celebrated, for years, among the most successful exhibitors at the Shows. When Mrs. Lawrence carried off the glories of Chiswick in her loaded vans, the Lea Bridge Nursery was the only power in England which could stop her sway; and the system of growth and training for exhibitions has been amply proved here to pay so well, that it has not been relaxed yet, nor is it likely to be in our time. Every plant, from the first crock in the pot, to the last tie for the exhibition, is treated here as if it were to be one of a collection for competition.

There are a house for every species of cultivation, and for forcing and retarding flowering plants, and houses for full-grown specimens, for intermediate sizes, and for training and drilling the young for battle; but the half of our world does not know the advantages that are to be had here under this system. I did not know them till I called, or I should have been here among the first of my visits.

We all thought that the firm kept a certain portion of their exhibition plants out of the market—that they would only sell their second-best plants, unless it were at enormously high prices; because the wide-spread fame of their successful competitions paid them better than the sale of their best plants could possibly do—no matter what they fetched. Nothing of the kind, however. Any one with cash, or credit, may buy a full collection of specimen plants there; and not only that, but may see and learn every move from the cutting-pots to those ready for the next Show. He may also learn the best and most proper kinds for every Show, “all round the year;” the best to force for the home conservatory for the whole winter through; and the best for every month in the year, in the event of public Shows being held monthly.

As for bedding out, they have a geometric garden, on grass, on purpose to prove the fashions, and what suits every fashion best. Even the beds are altered every third or fourth year to see which is preferable. There is to be a new set of beds this summer, fresh from the brains of a fashionable designer or landscape gardener—Mr. Davidson, of the Pomological secretarship. Spring flowers, and herbaceous plants, and rare, out-of-the-way plants, for mixed borders; with every plant and bed, or border, on the systematic principle.

Chinese Azaleas, fruit trees, and orchard-house fruit trees, seem to be Messrs. Frasers' great forte, after Geraniums and exhibition plants. It is in contemplation to hold a special public Show of these Azaleas in this nursery, after the manner of the Camellia Show at the Vauxhall Nursery, and the Hyacinths at Highgate. The Messrs. Fraser are decidedly in favour of not forcing either Rhododendrons or Azaleas, as long as there are kinds enough that will bloom sufficiently early “of themselves,” with a little help from cold pits from the end of the autumn; and they instanced the *vittata* race of Chinese Azaleas with that of *amæna* and *narcissiflora*, as coming in very early without forcing; also a large bed of fine hybrid Rhododendrons, then blooming in the open nursery, that would come in early in January, had they been in pots last autumn, and been removed under some slight shelter at the approach of winter.

The very first plant I pounced upon was *Cyclamen vernum*, of Sweet's “British Flower Garden.” Mr. Gordon's *vernum* is different, if, as he says, it have the flowers of *Coum* and the leaves of *Persicum*. It has the habit of tillering underground like *Coum*; and the leaves and the style of flower are after *Persicum*. It is as distinct as any of the genus; and my firm belief is, that *Cyclamen vernum* is the contra cross of *Atkinsii*—the one a seedling from *Coum* by the pollen of *Persicum*; and the other, a

seedling from *Persicum* by the pollen of *Coum*. Indeed, after seeing *Atkinsii*, it is difficult to arrive at any other conclusion, seeing there is no record of it in a wild state.

There is a large collection of Cyclamens here. But let us begin at the beginning—the principal show-house, which is a large span-roofed structure, with a front stage all round, and a centre stage of the same height. At one end, as you enter, was a large batch of the largest *Mimulus* I ever saw—all seedlings, and every one of them true to the parent plant; a particularly good kind to be sown in August, or September, and to be always depended on. Call it *Fraser's Mimulus*, and buy a packet of it next August, but bespeak it at once. It blooms magnificently in 60-pots; but in larger pots, and in saucers of water, who can tell the size? Guelder Roses, in 32-pots, with from ten to fifteen snow-ball flowers, as good as in the shrubbery. To obtain these, grow them like Moss and Cabbage Roses in every respect; pot them in November, prune them close, plunge them, and grow them twelve months in pots; then force, and count the cost. Three kinds of *Cytisus racemosus*, of which *Atleeana* is preferred by many; *Azalea vittata*, and three or more forms of it, without forcing; *Azalea amæna*, without forcing; *Azalea Fielderii*, the best white Chinese Azalea to force, the best habited and foliaged plant of all the whites; many more kinds of Azaleas—and the cream of a very large collection is here skimmed off on purpose; *Admiration*, a fine white, carnation-fashion; *Ardens*, a beautiful deep orange scarlet; *Bealii*, white, carnation-striped, and coming in early without forcing; *Beauty of Reigate*, one of the most ivory-like of whites; *Benno*, a fine salmon colour; *Carnea superba*, a florist's bloom of clear scarlet; *Chelsonii*, orange scarlet, and a profuse bloomer; *Cælina*, the very best of the purple strain; *Crispiflora*, rosy crimson, frilled on the edges; *Criterion*, the best of the *Equisita* breed; *Duke of Devonshire*, a large scarlet bloom of good shape; *Eulalie Van Geert*, a fine thing after the manner of *Criterion* and *Exquisita*; *Fielderii*, the best white to force; *Gladstonesii formosa*, white and Carnation, and Picotee-marked; *Holdfordiana*, one of the very best, a rosy crimson; *Juliana*, orange crimson, with a dark spot on the upper petals—a fine dwarf kind; *Louise Margottin*, ivory-white, large-striped occasionally; *Magnifera alba pleno*; *Perryana*, the well-known orange scarlet of the shows; *Roi de Leopold*, very fine florists' flower—a crimson; *Semiduplex maculata*, rosy and much spotted; *Semiduplex superba*, rosy crimson, very rich, with dark spots; *Souvenir de l'Exposition*, light crimson, spotted and white edged; *Vittata*, and *Vittata rosea*, *Vittata punctata*, and *Vittata Fortunii*, more or less carnation, and all early bloomers. Mrs. Fry and *Tivicans*, are two of the highest coloured, or crimson, of the whole family.

Deutzia gracilis, and fine standards of the same—no wonder at some people going to the dogs who could see no beauty in standard Deutzias; *Olianthus puniceus*, *Crimson King*, and *Alba multiflora*, forced Geraniums; fine Kalmias; Moss, Cabbage, Perpetual, Fairy Roses; *Dielytras*; *Berberis Darwinii*, and *Wallichii*—two very much alike out of bloom, and very unlike in bloom; *Wallichii* having greenish-yellow, and very peculiarly tinted flowers.

Heaths—as *Wilmorcanæ*, *regerminans*, a dwarf, strong-scented, light kind; *rubrocalyx*, *Cyndiana*, *suaveolens*, *arborea*, and others.

Diosma ambigua, which makes nice dwarf standards, like *Diosma capitata*; tree Carnations; *Tropæolum tricolorum*—trained specimens, ready for exhibition.

A lovely new form of *Tetralochea ericifolia*, which might be called *densa*—the most bushy, and the most elegant pot-plant that was ever named *ericifolia*.

Philadelphus grandiflorus, the common strong-scented “Syringa,” of the shrubberies. It was suggested, more than twenty years back, to cross *Philadelphus Mexicanus* with the pollen of this old Syringa, for an improved forceer. I did cross them at the time; and the seedlings were two years old when Mr. Stevens, with his unrelenting hammer,

sent them on the wide world without a nurse or protector. But I would strongly advise that cross to be tried again.

Some Acacias were still in bloom, as *Drummondii*, *lanceifolium hybrida* (an improvement on *armata*), *hispidissimum*, in the way of *grandis*, but more slender. All these, with spring bulbs and Mignonette, made up a handsome show-house.

The only real novelty in the show-house was a plant, looking between the aspects of *Humea* and *Enchusa*, or rather a tree *Echinum*, the name is *Muschia Woolastonii*. It has not flowered yet; but as the genus *Muschia* stands close to *Trachelium* and *Adenophora*, we may judge what the flowers will be—either a spike will rise from the centre, or a panicle or strong raceme covered with blue, white, or lilac campanulate flowers; apparently a fine thing.

The young leaves of *Euonymus fimbriatus* are here as good for show as crimson flowers; but they soon turn purple, and then green. The spring *Cyclamens* deserve a special notice, where one sees them liberally used in the show-house.

The next house is called the Camellia-house—a large house 120 feet long, where the chief of the stock is wintered and flowered; but about this time all that remain unsold are removed to close pits to make their growth and set their bloom for another year. One of the very few kinds of Camellias which were then in bloom, is a first-rate beauty called *La Reine*, a delicate soft white, with a creamy tinge at bottom, and also shaded and striped occasionally. To get young Camellias to make free, vigorous growth, and set abundance of bloom-buds at the same push, they must be grown in damp, close pits, and sun heat is better than any other for them; but the sun must not touch the young leaves till they are ripe, except early and late in the day. And the best way to get young Camellias to grow fast into specimens, without regard to blooms in the meantime, is to plant them out of the pots into nice, rich, mellow stuff, in a cold pit, and to hasten them on with sun heat the whole summer long; then, if the roots are good, the plants will make three vigorous growths in one season, or just as much as they would, or could, in three years by the common method. That I can vouch for, as well as report it.

The Camellia-house is now filled with the best kinds of greenhouse exhibition plants, set like the bedding-out system—that is, a space is given on the stage for every kind of plant, and every plant of that kind is in that space; and an edging, as it were, of some conspicuous plant, divides one space from another,—here stand *Aphelaxis*, by the scores, in bloom-bud; *Pimelia* the same; *Gastrolobiums*, *Boronias*, *Dillwynias*, *Eriostemons*, *Gompholobiums*, *Leschenaultias*, *Epaerises*, *Bouvardias*, *Chorozemas*, *Grevilleas*, *Adenandras*, *Correas*, *Tetrathecas*, *Staticeas*, *Lantanas*, *Mirbelias*, *Pleromas*, *Oxylobiums*, *Pultenaceas*, *Templetonias*, *Eutaxias*, and *Eurybias*, *Gardouquias*, *Gnidias*, *Bossieas*, and every other kind that is worth a place in the show-house, or for exhibition, from these and other popular genera of greenhouse plants. But I can only mention a few out of so many.

Hibbertia perfoliata, is a good exhibition plant, besides being a thorough good thing, and not liable to insects or mishaps. *Polygala Dalmaisiana*, the best of that race; not from *Dalmatia*, but a cross from *grandiflora* and *cordata*, by M. Dalmais, a foreigner. *Muraltia Heisteria*, in bloom all the winter, has been trained for the shows. *Lavandula dentata*, to give a delicious scent in a small compass. The two *Diosmas*, *ambigua* and *capitata*, and *Erica regerminans*, have each of them a peculiar scent of its own, and different from all the flower scents. They say, that plant-hawkers, in olden times, could smell *Erica regerminans*, three miles off. *Makia Victoria*, a broad-leaved kind, the best of them all, and the one with the least of the family appearance. *Eurybia ilicifolia*, looks much like *Ceanothus rigidus*; *Tremandra ericifolia*, fine; but very much finer is *Tremandra erici-*

folia densa, aforesaid. *Grevillea lavendulacea*, a fine dwarf thing, with all the parts of the flower like crimson claws. *Gastrolobium Drummondii*, now like to be catkins-flowered, but soon will be in clusters of terminal spikes of yellow pea-blossoms, with brown spots. *Pimelia diosmafolia*, the grand secret of being the best stock for working the others on; it is as much superior to *deussata*, as a stock, as a *spectabilis* is in respect to bloom; graft it very young, and quite low, and, in two or three years, no one could tell the plant was ever grafted; *spectabilis rosea* is a *Pimelia* that is little known out of London.

But talk of grafting, after seeing *Rhododendron Edgeworthii* inarched at the back of this house. This is a straggling-grower, that would do well as a pillar plant for a lofty conservatory. It is up ten feet in three years, in the Crystal Palace; but what I was going to say about the effects of inarching it here, is this:—The long rambling shoots had to be bent down, half doubled, to get to the bottom of the stock; and that so completely checked the growth, that all the points of all the inarched shoots ripened so completely, as to have the next start a flower-bud. It would have been just the same had the shoots been merely turned back, or doubled, on themselves—every one of them would have bloomed that way, as well as they do from inarching.

The next turn brought us among pits of seedling Pinuses, young Heaths, *Epaerises*, and Camellias. As at the Clapton Nursery, here were seedlings of *Wellingtonias*, *Picea Nordmanniana*, *Pinus Hartwegii*, *Cupressus Lawsoniana*, and the same producing cones, perhaps for the first time in Europe; *Juniperus Phœnicia*, and others running in that style.

Here *Epaeris lœvigata*, a pearly white one, shows how desirable it is for a private collection; as it never comes into bloom, or need never come, till all the rest of them are out and done with.

In front of these ranges of pits stood the stock of spring flowers and herbaceous plants in pots. The blue *Gentianella acaulis* does remarkably well here in rows and in pots; but for pots it is best to lift it a month before blooming time. *Cyclamen vernum*, *coulm*, *Europæum*, and *Europæum album*, *hederifolium* and *Atkinsii*; also *repandum*, *robustum*, and *Ibericum*, which, like *Atkinsii*, are seedling forms of the above, are all hardy, and are among the hardy herbaceous plants. *Phlox ovalis*, *procumbens*, *subulata*, and *verna*, all dwarf kinds and spring bloomers. *Ranondia pyrenaica*, *Pyrola rotundifolia*, *Silene maritima plena*; double white Primrose, double yellow ditto, double purple, and double lilac of the same. *Onthalodes verna*; *Epimedium grandiflorum*, and *violaceum*; *Anemone apennina*, *alpina*, *cernua*, *rosa pleno*, *Japanica*, and its hybrid; *vitifolia*, and its hybrid; *Aquilegia eximia*, and *glandulosa*; *Calandrinia umbellata*; *Cerastium tomentosum*; *Lotus corniculatus flore pleno*; *Dodecatheon elegans*, *alba*, and *media*; *Gaura Lindeniana*; *Erythronium dens-canis*, *albiflorum*, and *majus*; double white *Hepatica* at last; double red, double blue, and half-double ditto; and all the single *Hepaticas*—a rare chance! *Genista tinctoria flore pleno*; the great Sun-flower of California, *Helianthus Californicus*; *Platycodon grandiflorum*; *Saxifraga granulata pleno*; *Tritoma nvaria*, and *Burchellia*; *Soldanella alpina*, and *montana*; *Scilla præcox*; *Primula denticulata*; and *Saponaria oeymoides*, are all most worthy for the mixed border; to say nothing of all the finer *Pæonias*, *Pentstemons*, *Staticeas*, *Veronicas*, *Phloxes*, *Tigridias*, *Delphiniums*, *Antirrhinums*, *Dianthus*, *Campanulas*, *Gentianas*, *Lobelias*, *Oenotheras*, *Lychnis*, *Saxifragas*, *Sedums*, and *Sempervirens*, with hundreds more of that stamp, and in the most thorough order as to health, size, and proper naming. Verily there need be no lack of herbaceous plants, of rock and spring border-plants, in the face of such a collection.

Hardy and greenhouse Ferns and Lycopods, Hollyhocks of the first water, *Cinerarias* the same, *Calceolarias*, herbaceous, shrubby, and bedders, *Carnations*, *Pinks*, and

Picotees, and a full collection of Conifers and other hardy ornamental trees and shrubs, climbers, twiners, and trailers, and American plants too much to compress into one communication; but I made selections from them all, and learned the whole art and mystery of getting up Geraniums, Roses, stove and greenhouse plants for exhibition, which will last a whole season, or till I call for more to the same purpose. It is really astonishing to find how much can be learned in good nurseries; and the best of gardeners have yet to learn much from them.

D. BEATON.

THE PINCHING AND STOPPING OF FRUIT TREES—WHY, HOW, AND WHEN TO BE PERFORMED.

THIS doctrine, as applied to our fruit trees, is somewhat of a novel character if compared with the usual operations. In order to understand thoroughly the principle on which the practice is founded, it is indispensably necessary to have a just conception of those laws of Nature which regulate the absorption, circulation, and assimilation, of the sap of trees; as well as the reciprocation of root and branch action in this circulation. Without this, all must be mere rule; and, however correct a mere rule may be in itself, the possessor may be said to go about with one hand tied behind his back as compared with that freedom of mind which is the sure result of some science combined with extensive practice.

In the spring, when disbudding takes place, pinching off the points of over-luxuriant shoots is generally resorted to, in order that, by checking undue luxuriance in such portions, an increased impetus may be given to those shoots, or branches, which are below the proper standard of strength.

Such a principle of equalisation may be pursued at intervals through the summer. The practice is resorted to by some, in the early part of August, with those tender fruits which require every aid in our climate to enable them to ripen their wood. It may here be observed, also, that this procedure, if of any extent, has the power of moderating the root action, which is sure to be too impulsive when gross shoots prevail; for our readers may rest assured that there is a constant sympathy going on between root and branch.

If stopping is practised to equalise growth, it, of course, commences with the coarser shoots towards the extremities; but if the tree has an over-powerful root action, a secondary class of shoots, lower down the tree, will begin to acquire undue importance, and will in their course require a little attention. But to pinch, or stop, merely to control over-strong root action, is not the best practice; such purpose ought to be carried out by root pruning—which some are pleased to call a barbarous practice. But those who talk thus do not perfectly understand their subject, or they would not prejudge what they cannot appreciate: a more wholesome practice, when sensibly conducted, there is not in all the artifices of gardening. If root pruning is an error, so is the universal liberty we take of transplanting—a practice exercised in most cultural matters from a Cabbage to an Oak. We might as well say the same of all processes involving high culture; for instance, say that it is barbarous to bring the wild Celery from the ditch side, and make it a garden vegetable. We ought to have brought ditch and all, and then the culture would be natural, and point to a high degree of civilisation.

Stopping, or pinching, to ripen the wood is a practice that deserves much extension: its utility has never been fully appreciated. There seems to have been, generally, a prevailing idea, that this same stopping—almost wholesale—is taking great liberties with dame Nature. And are not many of our processes great liberties taken? Are not grafting, budding, pruning, and fifty other operations?

Although this pinching to promote ripening may be improperly practised, I can assure our readers that it is one of the most useful arts exercised by the gardener. This I have proved to my mind's content during the last score years. Of what use is it to suffer tender fruits to continue producing wood until October? If any person thinks that plenty of growing shoots at the extremity of trees cause the fruit to be larger, it is a gross mistake. If stopping during the period of growth were more generally practised, there would be far less labour over pruning in winter.

But another point for consideration: stopping duly carried out prevents the trees acquiring so much timber. Our readers may smile at the idea of timber; but I have seen wall trees, as well as others, with timber enough in the bole and branches to make a lot of chairs, at the same time the lowest amount of really bearing and profitable wood. I have Peach and Nectarine trees here; some twenty-five years old, and which extend from twenty to thirty feet in length, and are clothed from the bole to the extremities, and yet the bole and the larger branches might be chopped up and carried under the arm. This fact I have known to astonish many gardeners—it has been the subject of many a conversation—and why thus? Merely because these trees have been pinched regularly from the first year of their growth.

But to return to disbudding, which somehow presents itself in connection with stopping. Here is another agent in assisting to regulate the flow of sap. Disbudding must be performed with a constant reference to the habits of growth and fruiting of the respective kinds. Thus, it will not do to disbud a Peach and a Pear, or Cherry, on the same principle. I have named this in order to pave the way to some remarks on Peach stopping or pinching. Last year I adverted to the old doctrine of disbudding Peaches, and remarked that the process need not be of such a wholesale character as old custom would have it. I had long an idea, that, since Peaches would bear on spurs (and generally the finest fruit too), it would be expedient—especially in northern parts, where the wood does not ripen so well as could be desired—to pinch back many of those shoots which used to be rubbed away. Of this I am now well assured, provided justice is done to the pinching process. I have tried this practice for two years, cautiously at first; but, on perceiving good results, I pushed the principle further last year: indeed, in a Peach-house I have left little else to produce fruit than spurs—terminal points of course excepted. The crop last year was splendid; and this year promises to be even finer still.

As for "setting," I have a notion that it is, by far, more certain on spurs than on young wood; for this season the trees were like a well-daisied field, and I believe that scarcely one blossom in a hundred missed. Indeed, I could never perceive any fallen. The consequence has been that the greater portion has been pulled off; but this is much easier than to put them on. Besides, in Peach culture, what competition ensues between the long shoots of young wood, when the tree is finally pruned and nailed. To train in and reserve two or more young shoots of the former year, side by side, and within two or three inches of each other, is sure to give rise to much confusion if the long-shoot system be pursued. This the pinching or spurring system avoids.

It should be remembered that this pinching requires a little modification according to circumstances. There are what may be called general pinching and special. The latter is a process chiefly confined to the earlier growths, and destined to check what are called robbers—over-rampant shoots; it must, therefore, follow those growths in whatever part of the tree they appear. The August or September stopping, which serves a double purpose—that of ripening the wood, and equalising the strength of the tree—must be practised with a slight difference. My practice is, to do it at twice or thrice; and the first stopping is prac-

tised chiefly at the upper portions of the trees, where the strongest wood generally will be found. Thus, in healthy trees about one-half is pinched as a first attack. This has the effect of throwing a little extra power into a secondary class of shoots, which are left growing for another fortnight or so, when the next strongest class of spray is pinched; and if this is final, care is taken not to pinch a single shoot in any part which is short of power.

This mode of procedure is of more avail in equalising, as much as possible, the strength of the trees than all winter pruning of whatever kind: this I say without any desire to undervalue winter pruning where necessity calls for it. Wherever there is much for the knife to perform, in the dormant season, in tender-trained fruit trees—there, I will affirm, has been a neglect of summer pruning; which seems to be, by universal consent, termed “pinching.” As to the ripening of the wood, it is of high importance; and again let me add that it will, in all cases, promote both size and quality in the fruit when judiciously performed.

R. ERRINGTON.

CULTURE OF NERIU OLEANDER.

“Will you kindly inform me how I am to treat a fine, large Oleander, to induce it to bloom? I cannot put it in a greenhouse. Does it require much heat? I can put it in a south window, five miles north of Salisbury. I repotted it in February, in a compost of one part good fresh turf, cut in small pieces; one part sandy soil; and one part decayed cowdung, with good drainage; but the buds which formed last year are no larger than they were in November last. Does it require much water?”—A CONSTANT READER.

THE treatment of this plant has frequently been given; but, at your request, we will venture to give an epitome of management, as there is a point or two in your letter worth alluding to just now. If your window is large enough, the Oleander will grow, and, perhaps, bloom there until June; after that time it may stand in a sheltered place, out of doors, until the middle of October. With window and common house-management we should hardly expect the plant to bloom until May, as it requires a good amount of heat to open the buds nicely.

The first thing we notice, is about the “buds formed last year, and which are no larger than they were in November last.” Are these flower-buds? Because, the flower-buds of window plants are not often formed then. Could we have dropped in upon you, we should have liked to make sure of this fact. We allude to this, because we have seen this plant nipped and stopped regularly to produce stubby growth; but, under such treatment, there might be plenty of wishing and whistling for flowers; but would any come? A lady, not long ago, took off the points of five fine, well-ripened shoots, they looked so long and lanky. Then, quite artistically, a string was fastened round the rim of the pot, and each shoot bent down and fastened to it, in semi-circular style; and as the young shoots broke freely from almost every joint, great were the anticipations of a magnificent mass of bloom. Need I say, that as the plant blooms only this year, at the points of shoots well grown and well ripened last year, the removing the points of the shoots removed all chance of bloom—that, under the best treatment, the young shoots now growing could only be made to bloom in 1860—and if not well thinned and well grown, flowers would hardly come until 1861? To secure flowers on a plant every year, therefore, there must be two races of shoots on each plant,—strong, well-ripened ones, to bloom this year, and weaker ones to succeed. As soon as the flowering-shoots are cut back when done flowering, strength is thrown into the others left, and another crop of younger shoots breaks from the flowering-shoots cut back: but no flower-truss or umbel can ever come, unless from the point of a well-matured shoot. The flower-stalk just looks, at first, like a prolongation of

the shoot. Supposing, then—what we are not quite sure of—that your flower-stems are formed, and the flower-buds clustered on them, there is just a little fact here worth some attention for every grower of this beautiful plant.

Shortly after the flower-stem appears, three or four fresh young shoots will also be protruded, close to, and round, its base. These frequently grow very fast, and are apt to rob the flower-stem. So that instead of a large massive umbel-armful of flowers, you get only a few, or even none, from the small buds dropping off before they expand. To prevent this, nip out these young shoots at the base of the flower-stem as soon as you can get hold of them, and do not let the plant want water at this period.

The second thing we would notice is, your repotting such a plant in February, as many of our readers entertain erroneous ideas upon this subject, and are so anxious, that they imagine they can never pot their plants too often, or at a wrong time. Now, we believe that many a disappointment would be avoided, if, as regards the pot-culture of plants, two axioms were constantly kept in view. First. Never, unless in particular circumstances, repot a plant after its flower-buds are formed, or you have reason to believe that they are forming. Secondly. Always manage so that the roots are clinging to the sides of the pot before the flower-stems appear. Of course, as alluded to above, there will be exceptions; but these will be safe rules for general practice. Just reverse these rules, and the check of repotting may injure or endanger the flower-bud; or, on the other hand, throw strength into leaves instead of flower-stems and buds. If the flower-buds of your Oleander were showing, the repotting in February, unless managed with care, might have caused many buds to drop. A little surface soil might have been removed, and a top dressing of rich compost given. Considering the nature of the plant, and its mode of flowering, the last repotting should have been given early in August, or some time early in autumn. Your compost is right enough.

Your other questions, as to heat and water, will at once be answered by the following outline of management, as additional to what is stated above. The plant must have heat and moisture; and yet it will thrive best when dryish and cool at times. It flourishes best in eastern countries, when, by the side of streams and rivers, its roots are overflowed with water at one period of the year, and the soil about them baked, heated, and cracked by the powerful rays of the sun at another. Naturally, therefore, the plant has a growing and flowering, and a ripening and resting time; and so far as we can imitate these changes in our climate, the more successful we shall be.

For instance: whether your plant is showing bloom or not, it must be encouraged to grow now by plenty of water and all the sunlight possible. Being almost half an aquatic, if there is a little water at times in the bottom of the saucer it will do no harm. Continue this treatment as long as the plant is in the house. If set out of doors in June or July, choose a shady day for the purpose; and as soon as the plant will stand the sun uninjured, let it be fully exposed, and give all the water it wants. By September move the plant to the hottest and sunniest spot you can get—say in front of a south wall or fence. Now gradually begin to curtail water; and from this period give no more than will just keep the leathery leaves from flagging. Rains fall at this season often pretty freely; but by means of boards or slates, &c., you must contrive to throw the water past the pots and roots. The object is to ripen the stems by giving them all the sunlight possible, and having the roots as dry as will just prevent the plants suffering. The greater the amount of direct light and heat from the sun the plants have, and the smaller the quantity of water at the roots at this period, the more chance for the stopping the lengthening of the

shoot, and for the flower-bud being formed at its point. The whole plant thus obtains a firm, instead of a succulent or squashy look: that very firmness makes the plant less susceptible of injuries during the winter. Kept in this dryish state, it will be quite safe anywhere where there is a little light, and the temperature averaging from 35° to 40°. If it stands on a damp floor it will get moisture enough from it. If you place it in a higher temperature in winter, it may want a little water. If the temperature should average 50° in winter, not only would a little water be required, but the stimulus to grow given in the dark days would be apt to excite growth of wood, and leave your flower-bud unexpanded. For house treatment it is best to preserve the cool and dry management until April, or the end of March. Place in the window then; the additional heat and moisture given will start the flower-bud, when there will be sun heat to encourage its growth and expansion. From that time, until the roasting and drying period in autumn, give the plant as much moisture as it can suck up. With plenty of moisture, it will find no fault with all the window-heat you can give it in summer. If the plant were grown in a hothouse, this statement would have to be modified. From 70° to 90° sun heat, during the day, and from 50° to 60° at night, would be a good average. If the temperature, especially at night, were much higher, and moisture given in proportion, the shoots would be so juicy and succulent that it would be more difficult to ripen them thoroughly in the autumn. Hence, plants treated as window and cool greenhouse plants, often bloom better than those coddled and shaded in stoves and forcing-houses.

The mode of pruning for succession has been referred to. Some growers prefer succession of plants—such as a plant with no shoots but flowering ones this season, which, cut when done flowering—say, in July, or later—will just start the young shoots nicely; and fresh soil being then given, these shoots must be kept just slowly growing all the winter, be grown vigorously in the summer of 1860, ripened in autumn, and rested in winter, and bloomed in 1861. Plants forced early this spring will finish blooming early—say, in April and May; and those kept in heat after being cut down, and forced on, will be strong enough to bloom later next year. As a rule, however, the shoots have to grow a whole season before they can be expected to bloom. By having a succession of shoots on one plant, bloom may be expected from it every year, as explained above, if the necessary treatment be given.

It will thus be seen, that, without the necessary explanation, I could not say whether this Oleander wanted much heat or much water. These little minutiae constitute the elements of success.

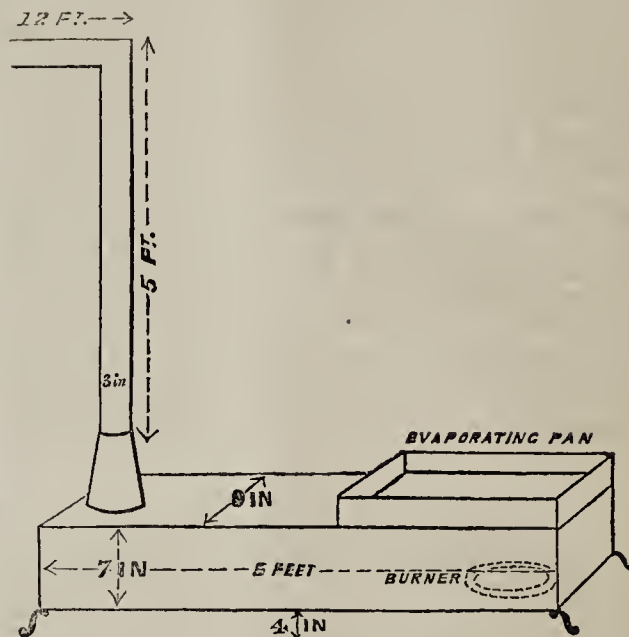
R. FISH.

HEATING BY GAS.

MANY persons who, like myself, have no other convenient means of heating their greenhouses but by gas, are, notwithstanding the failures which have attended attempts to effect that purpose, still anxious to adopt gas, if they can do so without injury to their plants. For their assistance I will give the details of an apparatus, which, for the last two seasons, has enabled me to secure my plants from frost, and, at the same time, grow healthily the more hardy winter flowers—as Primulas, Cyclamens, &c. To enable you to judge of the influence of the apparatus on the inmates of the greenhouse, I will describe one of them, and give its antecedents.

The house was erected in the early part of 1857. At that time a Rose was growing against the back wall, which had a western aspect partially shaded by projecting buildings. This Rose grew with tolerable strength, but bore no flowers when the house was glazed in March. I budded it with a *Gloire de Dijon*. The bud grew and flourished exceedingly; and now, after being exposed to gas-heating for two seasons, has, with a foliage in perfect health, fifty-two blossoms, the larger portion of which are fully expanded, and equal to the best I have seen. I believe

scarcely any plant is more immediately influenced by injurious gases than the Rose.



I will now proceed to describe the apparatus, which consists of a burner—a ring of brass tube—five inches and a half in diameter, pierced with fifteen small holes—placed four inches above the level of the floor. Over the burner is what I may describe as an inverted galvanised iron trough, nine inches wide, seven inches deep, and five feet long, resting on four legs four inches high. The burner is placed under one extremity of this trough; from the other end runs the chimney, which is of three-inch galvanised iron piping, the joints of which are not cemented. This rises five feet, and is then carried across the house twelve feet, and finally makes its exit in the kitchen chimney. Placed on the top of the trough over the burner is an evaporating-pan, containing about three gallons.

This arrangement, if not ornamental, is cheap and useful, and, with a little expense, may be made more elegant; at any rate, it is entirely removed during the season when the more attractive flowers of summer invite visitors. The rationale of the apparatus appears to be as follows:—The length and sides of the cover of the burner affording a large radiating surface, diffuse the heat equally; and this radiation, lowering the temperature of the air heated by the gas, so modifies the rapidity of draught, that the larger portion of the heat is given out before the proceeds of combustion finally escape. And while the ascending property of heated air prevents the escape of these proceeds at the open bottom of the trough under ordinary circumstances, in the event of a sudden gust of wind reversing the current in the pipe, the consumed air escapes before it reaches the burner, and the gas is not liable to be extinguished. This accident is not likely to occur where the pipe is carried into a chimney.

The house is a lean-to, fourteen feet square, and thirteen feet high at the back.—EDMUND TONKS.

VINES FROM EYES.—I have been experimenting with all the different modes of propagating Vines from eyes, and find the following the most successful. Take strong, hard, and well-ripened shoots of the last year's growth. Cut them, with a sharp knife, from a quarter to half an inch above a bud, and from an inch to an inch and a half below one, according to the size or strength of the shoot. Place them in an upright or a vertical position in sandy rich soil, and barely cover the upper part of the cutting. I have found cuttings formed and planted in this way to root with more certainty and celerity than in the old way of planting them in a horizontal position, with as much of the wood left above the bud as below it. All the wood left above the bud is a disadvantage, being liable to canker and rot. Some persons cut a notch immediately opposite to the eye, supposing that it expedites the rooting; but I have found no advantage from it, but rather the contrary.—J. H., Buffalo, N.Y. (*American Gardener's Monthly*.)

BRITISH POMOLOGICAL SOCIETY.

(Continued from page 23.)

Of KITCHEN APPLES were *Gooseberry Pippin*, *King of Pippins* (flat), *Yorkshire Greening*, *Dumelow's Seedling* (under both its synonymes, *Wellington* and *Normanton Wonder*), *Royal Russet*, *Norfolk Beaufin*, and, apparently, good late-keeping Apples—probably local varieties, sent erroneously under the names of *Northern Greening*, *Winter Queening*, *Winter Pearmain*, and *Kirk's Scarlet Admirable*.

This collection also contained two valuable kitchen varieties, not hitherto described in catalogues,—*Castle Major*, a medium-sized oblately spherical Apple; average diameter about three inches; eye open, clean; stalk long, rather slender, deeply inserted; colour pale greenish-yellow, rather densely covered with whitish spots, tipped with brown-russety specks; flesh firm, juicy, and briskly acid. *Poor Man's Profit*, a large, handsome, oblately conoid fruit; colour pale lemon, much striped with red on sunny side; average diameter three inches and a half. Evidently a first-class late kitchen Apple.

The second prize was awarded to Mr. M'LAREN (gardener to S. C. Whitbread, Esq.), Cardington, near Bedford, whose collection contained two varieties of Pears and twenty-three of Apples. No particular pains had been taken with the keeping; the fruit having been thinly spread in a loft, with a little wheat-straw under some of the best of them. (It may here be mentioned, that it was quite easy to distinguish which kinds had been kept on the straw. Fruit-growers do not appear to be aware, that choice fruits absorb the flavour of straw, moss, hay, or any strong-smelling vegetable matters which they are laid upon, or even packed in, for a very short time.) Mr. M'Laren's Pears were *Easter Beurré*, melting, juicy, and sweet, the best dish of the kind which had come under the Society's notice during the season;—and *Beurré Rance*, large, very melting, and good-flavoured. Some of the Apples in this collection were evidently over-ripe, and far beyond their possible season—such as *Ribston Pippin*, and other late autumn and early winter varieties. Of kinds in season, however, some were very good, especially the following:—*Barcelona Pearmain*, described in a former report, and now recognised as a synonyme of *Speckled Golden Reinette*; *Golden Nonpareil* under the name of *Scarlet Nonpareil*, firm, juicy, and very rich; as also was *Golden Reinette*, which was sent under the name of *Golden Russet*, *Court of Wick*⁽⁹⁾ and *Wyken Pippin*⁽⁹⁾ were good, juicy, and well-kept; the rest of the varieties were kitchen Apples, in good condition, but of the same kinds as those mentioned in the previous collections.

Mr. HOLDER, of Reading, contributed a large and interesting collection, containing upwards of thirty varieties generally in very good state of preservation. They had been kept in round hampers, in an open airy barn, and covered over with sacks, or a little straw, in cold weather. Amongst the PEARS, *Ne plus Meuris* was very juicy and melting, but not high-flavoured; *Beurré Rance*, very fine, and promising to be good, but not ripe. Of the APPLES, the best were the *Old Nonpareil*, and a variety very nearly identical, called *Brown Nonpareil*: both were in excellent condition, juicy, tender-fleshed, and good in flavour; *Scarlet Nonpareil*, misnamed *Golden Russet*, in excellent order for the season; and the true *Golden Russet*, under the name of *Orange Russet*, good in flavour, but dry. Amongst Kitchen Apples were very good dishes of the *Royal Russet*, under the synonymes of *Buff Russet* and *Silver Russet*. The remaining dishes were of the same leading varieties as are enumerated in some of the other collections, and not sufficiently remarkable to be specially detailed.

Mr. NEWTON (gardener to G. J. Graham, Esq.), brought a collection of fifteen varieties of Apples, which exhibited the results of some experiments he had made in different

methods of keeping. Most of the examples were remarkably plump and fresh in appearance; and even such varieties as *Golden Pippin* and *Ribston Pippin* were barely past condition. Mr. Newton stated, that, after gathering, the fruit was laid on shelves in the fruit-room for about a month, to allow of a partial evaporation; and then the best were selected and packed in layers, with Reigate sand amongst them, in old butter-tubs. Some of the kinds were packed in sand, just as it was dug out of the pit, and containing its natural moisture; others were packed in similar sand from which the moisture had been expelled by baking. Those in the naturally damp sand had kept in excellent condition and flavour, and were rich and juicy; but those in the dried sand had lost all their flavour and part of their juiciness. Mr. Newton mentioned, however, that last season he made a similar experiment with dried sand, but enveloped each fruit in a piece of thin tissue paper, and that they had kept their flavour much better. He proposes, however, next season to take equal samples of fruit of the certain kinds, and preserve them in each of the three ways above mentioned, that the Society may estimate exactly the results of each. The varieties he exhibited in best condition were *Sereveten's Golden Pippin*, firm, juicy, and rich in flavour; *Pearson's Plate*, nice, brisk, and very juicy; *Dutch Mignonne*, good, but rather shrivelled, as if gathered too early; and a very good and little-known variety called *Holland Pippin*, which, with one or two others, were specially asked for on another occasion for better identification.

JOSIAH MOORMAN, Esq., of No. 1, Portland Place, Clapham, sent a nice collection, comprising five dishes of Pears. *Old Colmar* and *Easter Beurré*, melting and juicy, but not high-flavoured. *Jean de Witte*, very melting, sugary, and delicious. *Knight's Monarch*, promising to be melting and very good, but barely ripe. *Ne plus Meuris*, melting, juicy, and very rich. They had been carefully placed on open lath shelves in a fruit-room.

Mr. SWINERD (gardener to John Swinford, Esq.); Minster Abbey, Isle of Thanet, Kent, sent an interesting collection of about twenty kinds, including four Pears, of which *Passe Colmar*, and *Beurré Rance*, were good, but not high-flavoured. *Easter Beurré*, under-ripe; and *Winter Crassane*, past. The Apples were plump and tender-fleshed, but not juicy or high-flavoured, the best were *Court-pendu Plat*, under the name of *Du Corfu*; and *Sam Young*, under the name of *Russet Nonpareil*. Mr. Swinerd sent the following particulars concerning the mode in which they had been kept:—

"The room that the Apples and Pears have been kept in, is part of the old Abbey, the walls of which are two feet thick, and fourteen feet from the ground. The north and east walls are exposed, and the south and west are built against with other buildings. The window is in the east wall, and has got an air-tight shutter to keep the frost out. The top is covered in with a tank, that holds sixteen butts of water; so that it is impossible for the frost to come through at the top (?). The room is entered by a trap-hatch, which shuts down air-tight. The room is fitted all round with shelves, and I never use anything but old newspapers, to lay the fruit on.

"A stoke-hole and boiler for vinery are fitted up under the room: and by opening the trap-door of the Apple-room, and shutting the door of the stoke-hole, I can keep the frost out, and have the room at what temperature I please."

Mr. WIGHTON (gardener to Lord Stafford, Cossey Hall, Norfolk) sent a collection of seven Pears and ten Apples—generally as examples of fruit kept in the long grass under the fruit trees, where they had remained since they fell off naturally. The fruit was all firm and sound, though the skins of some were damaged and bruised. The flavour was not high; but many of them were sugary; and the Pears would, probably, have been very good if they had been ripened in a warm room. This remark applies equally to at least nine-tenths of the Pears which are exhibited in winter; and the inattention to this most important consideration is probably the result of the

system of judging fruit entirely by its appearance, which was that usually followed until the BRITISH POMOLOGICAL SOCIETY adopted the common-sense notion that fruit must be good as well as handsome. Of the PEARS—*Beurré Rance* was sweet and juicy. *Winter Crassane*, ripe and juicy but tasteless. *Knight's Monarch*, and *Susette de Bavay*, under its own name, as well as under the name of *Jean de Witte*, hard, and unripe; but containing the elements of juiciness and sweetness. Of the APPLES—the best of those kept, as above, was *Birmingham*, under the name of *Court of Wick*, small but firm, juicy, and sweet. The rest were chiefly kitchen Apples, amongst which were fine specimens of *Gogar Pippin*, a firm, good-keeping Apple, not so well known as it deserves; and the *White* or *Norfolk Stone Pippin*. Amongst Apples kept in “a fruit-room in the usual way,” were dishes of *Golden Russet*, and *Scarlet Nonpareil*, in excellent condition, juicy, and high-flavoured.

Mr. DIVERS sent a collection of twenty dishes of Apples, and a very good dish, but scarcely ripe, of *Old Colmar Pear*. The fruit had all been kept in a fruit-room on wooden shelves, covered with paper, and were generally in good condition, and of the same leading varieties as have been enumerated in the notes of other collections.

Smaller collections were exhibited, principally for naming, by Mr. HOLMES, Sheffield; Mr. DAVIDSON, Weston; Dr. DAVIES, Pershore; H. G. BOHN, Esq., Twickenham; Rev. R. EDDIE, Broughton Salvey, South Notts; Rev. J. H. SIELEY, Lackford Rectory, Bury St. Edmunds; Mr. PAUL, Cheshunt; Mr. JOHN BROWN (gardener to Rev. H. S. Matthews), Bentworth Rectory, Alton, Hants; amongst which were *Bergamot d'Esperen* Pear, very melting and good, but rather over-ripe; and the true *Winter Pearmain*. (Grafts of this will be obtained for distribution on the 1st of February, 1860. At least twenty different varieties have been sent to the different meetings under this name during the past season.—Sec.)

GRAPES.—Mr. GEORGE COOPER (gardener at) the Palace, Armagh, Ireland, sent two bunches of a black variety, very plump, fresh, and good-flavoured, but without name. It was considered very closely to resemble *Lady Down's Seedling*, but was thicker-skinned and more oval in berry. It was directed that Mr. Cooper should be requested to send specimens, with leaves, wood, &c., to one of the great *Grape meetings* which are appointed for the ensuing season, when it could be carefully compared with other similar varieties.

NOTES ON NEW OR RARE PLANTS.

RHODODENDRON CHAMECISTUS, L. Nat. ord., *Ericaceæ*. Native of the Alps of Europe.—Habit compact and very neat. Leaves very small, crowded, elliptical, acute, smooth above and below; margin ciliated with stiff, short, glandular hairs. Flowers terminal, each upon a peduncle about an inch in length; the latter covered with glandular short hairs, and based by a couple of elliptical concave bracts. Calyx very deeply cut into five acute lanceolate segments, covered with short glandular hairs. Tube of the corolla very short. Limb spreading, and divided into five ovate wrinkled lobes; the base of the limb is beautifully striated with delicate purple; the rest white tinged with rose. Filaments long, curved at the base, and there furnished with tufts of inconspicuous white hairs. Anthers oblong, dark-purplish brown. Style curved. Stigma simple.

A lovely little plant, treating us in March and April with its delicately beautiful flowers in great profusion. Being quite hardy, it may be cultivated in a sheltered shady corner out of doors, in sandy peat. But it will also give much satisfaction as a pot plant; in which case it will require the protection of a cold frame in winter, and the drainage must be most perfect. Cuttings of the young shoots, just becoming hard at the base, root pretty freely in very sandy peat in a cool frame with a northern aspect.

GOODIA LATIFOLIA, Salisb. Nat. ord., *Leguminosæ*. Native of Tasmania.—Dwarf, and slightly loose in habit. Branches

slender, smooth green. Leaves alternate, trifoliate. Petioles short, slender, and slightly swollen at the base. Leaflets shortly petioluled, obovate with a mucronate apex, smooth bright green. Racemes axillary and terminal. Calyx two-lipped; the upper lip divided into two short blunt teeth; and the lower one more deeply cut into two acute spreading segments. Standard orbicular, spreading, reflexed, emarginate, yellow, with, near the base, two oblong, reddish-brown spots. Wings obovately linear, deflexed, and enclosing the keel, yellow. Keel short and broad, yellow.

A very desirable greenhouse plant, blooming very freely in the early spring months. Peat and sandy fibrous loam make a very suitable compost for it. It roots freely from cuttings, and also ripens seeds. Plants originating from cuttings have the best habit; but in either case, when young, the plants should have careful attention to stopping and tying, to correct the slight tendency to ramble which is natural to them.

EPACRIS OBTUSIFOLIA, Sm. Nat. ord., *Epacridaceæ*. Native of New Holland.—About a foot high, with compact somewhat rigid habit. Leaves elliptical or linear lanceolate, obtuse, rigid, and mucronate. Flowers axillary, and solitary, sessile. Calyx divided into five acute short teeth, with a closely imbricated involucre of several greenish membranous bracts. Tube of the corolla short and wide. Limb of five bluntly ovate, concave segments, white. Stamens five, attached to the tube of the corolla, with very little of their filaments free. Anthers brown. Style erect, rigid, longer than the stamens. Stigma capitate.

Those delighting in distinct species of this interesting and useful genus will find much pleasure in possessing this free-flowering and beautiful one. Good sandy fibry peat is the most suitable soil. Cuttings in spring or early summer of the young shoots root freely enough. It should be cut back and kept close for some time after flowering to encourage young growth.

EUGENIA TRINERVIA, D. C. Nat. ord., *Myrtaceæ*. Native of New Holland, and introduced to cultivation by Allan Cunningham.—Dwarf, and compactly branching. Branches round; and, when young, covered with short brownish hairs. Leaves opposite, shortly petioled, distinctly three-nerved. Inflorescence in panicles, with the short pedicels at nearly right angles with the peduncle. Calyx consisting of five short, acute, green segments. Corolla of five rounded membranous rosy-white petals. Stamens numerous, with short, very slender filaments of a pale rose colour, and capitate anthers. Fruit obovate, inclining to quadrangular. Style slightly longer than the filaments. Stigma somewhat capitate.

A greenhouse plant of excellent character, and easy culture. It blooms in February and March most profusely; but the individual flowers are not lasting. Good fibrous loam, with a little peat and sand, are the best compost for it. It thrives well in a stove; but is most at home in the greenhouse. Propagates freely enough from cuttings in the ordinary way.—S. G. W.

BOUVARDIA LONGIFLORA.

THIS lovely plant produces, at the end of the shoots, a corymb of pure white tubular flowers, with a spreading border to each; and very sweet scented, almost as much so as the common white Jasmine. It grows about a foot high; and produces, when strong, five or six heads of flowers, which last a considerable time in bloom. Like many other plants, when first introduced, it was thought difficult to cultivate, and was treated too tenderly. In fact, it was killed with mistaken kindness. During my travels last summer I met with it exceedingly well grown, and blooming profusely. I first saw it so managed at the large nursery establishment of Messrs. Fisher and Holmes, at Handsworth, near Sheffield. There the plants were in six-inch pots, and set out of doors on coal ashes, near a hedge, amongst other hardy greenhouse plants, in considerable numbers. Each plant was covered with blooms, and as healthy and robust as possible. No particular treatment was given to it any further than watering, when dry, in the ordinary way. I saw it, also, at an horticultural exhibition at Worksop, equally well grown, and even better flowered. From these facts I have drawn the conclusion, that a more free exposure to light and air is all that it requires. The soil for it consists of a compost of sandy peat, fibry loam, and leaf mould, in equal parts. It is easily propagated by cuttings of half-ripened wood, in sand, under a frame or bell-glass, in gentle heat. May or June is a good time to put the

cuttings in. After roots are emitted, pot them off into small pots, shade till they are established, and then gradually harden them off, and place them out of doors till October, stopping once or twice to make them bushy. Then place them on a shelf in the greenhouse through the winter. In March, repot them into four-inch pots, and put them into a cold frame, protecting them from spring frosts. As soon as the weather will permit, place them out of doors, but do not allow them to flower that season. House them at the proper time; and, in March following, repot them into six-inch pots, stopping them in severely. Then, when the frosts are over, set them out of doors again, and every plant will flower profusely. They may then be brought into the greenhouse or conservatory, to display their beauty, and emit their grateful perfume, to reward the cultivator for the pains and care he has bestowed upon them. After that season they may be potted again into larger pots, and treated hardly as before; and will then become handsome specimens for decoration or exhibiting purposes.—T. APPLEBY.

GUNDLACH ON THE SECRETION OF WAX BY BEES.

As MR. WIGHTON appears to doubt some of the conclusions arrived at by the above-named eminent German apiarian, I am induced to submit a few extracts from his "Natural History of Bees," which, it will be perceived, fully bear out the opinions advocated by "B. and W.," and Lieut.-Col. Newman, as well as by—A DEVONSHIRE BEE-KEEPER.

"As soon as the bees have filled their stomach, or what is called the honey bladder, with honey, and cannot deposit it for want of cells, the honey passes gradually, in large quantity, into the intestinal canal, where it is digested. The greater part is expelled as excrement; the rest enters the fluids of the bee. In consequence of this great flow of juices, a fatty substance is produced, which oozes out on the eight spots formerly mentioned, which occur on the four lower scales of the abdominal rings, and soon hardens into laminae of wax. On the other hand, when the bees can deposit their honey, only so much enters the intestinal canal as is necessary for their support. The honey bladder need not be filled with honey longer than forty hours, in order to bring to maturity, on the eight spots, eight laminae of wax, so that the latter fall off. I made the experiment of giving to bees, which I had enclosed in a box with their queen about the end of September, dissolved sugar candy instead of honey. Out of this food laminae of wax were formed; but these would not separate and fall off readily; so that the mass, which continued to ooze out, remained, in most of the bees, hanging to the upper lamina; and the laminae of wax became as thick as four under ordinary circumstances. The abdominal scales of the bees were, by means of the wax, distinctly raised, so that the waxen laminae projected between them. On examination, I found that these thick laminae, which, under the microscope, exhibited several lamellae, had a sloping surface downwards near the head, and upwards in the vicinity of the tail. The first waxen lamina, therefore, must have been pushed downwards by the second; (because, where abdominal scales are attached to the skin, there is no space for two laminae); the second by the third, and thus the inclined surfaces on the sides of the thick laminae had been produced. I saw distinctly from this, that the first-formed laminae are detached by those which follow. The sugar had been converted into wax by the bees; but it would seem that there was some imperfection in the process, as the laminae did not fall off, but adhered to the succeeding ones.

"In order to produce wax in the manner described, the bees require no pollen, but only honey. I have placed, even in October, bees in an empty hive, and fed them with honey; they soon formed comb, although the weather was such that they could not leave the hive. I cannot, therefore, believe that pollen furnishes food for the bees; but I think they only swallow it in order, by mixing it with honey and water, to prepare the liquid food for the grubs. Besides, bees often starve in April, when their stock of honey is consumed, and when they can obtain in the fields abundance of pollen, but no honey. When pressed by hunger, they tear the nymphæ out of the cells, and gnaw them in order to support life by the sweet juice which they contain. But, if in this condition they are not artificially fed, or if the fields do not soon yield their proper food, they die in the course of a few days. Now, if the pollen were really nourishment for bees, they ought to be able to support life on it, mixed with water.

"Bees never build honeycomb unless they have a queen, or are provided with young out of which they can educate a queen. But, if bees are shut up in a hive without a queen, and fed with honey, we can perceive in forty-eight hours that they have laminae of wax on their scales, and that some have even separated. The building of cells is, therefore, voluntary, and dependent on certain conditions, but the oozing out of wax is involuntary.

"One might suppose that a large proportion of these laminae must be lost, since the bees may allow them to fall off out of the hive as well as in it; but the Creator has wisely provided against such a loss. If we give to bees engaged in building cells honey in a flat dish, and cover the dish with perforated paper, that the bees may not be entangled in the honey, we shall find, after a day, that the honey has disappeared, and that a large number of laminae are lying on the paper. It would appear as if the bees, which have carried off the honey, had let fall the scales; but it is not so. For, if above the paper we lay two small rods, and on these a board overhanging the dish on every side, so that the bees can creep under the board and obtain the honey, we shall find next day the honey gone, but no laminae on the paper; while laminae will be found in abundance on the board above. The bees, therefore, which go for and bring the honey, do not let fall the laminae of wax, but only those bees which remain hanging to the top of the hive. Repeated experiments of this kind have convinced me that the bees, as soon as their laminae of wax are mature, return to the hive and remain at rest, just as caterpillars do when about to change. In a swarm that is actually employed in building, we may see thousands of bees hanging idly at the top of the hive. These are all bees whose laminae of wax are about to separate. When they have fallen off, the activity of the bee revives, and its place is occupied for the same purpose by another."

(To be continued.)

VARIETIES.

THE DUGONG AND ITS OIL.—A specimen of this curious and interesting marine animal may now (January 22) be seen at the shop of Mr. Elliott, the druggist, in George Street; and by those who take an interest in the natural history and productions of Australia it will be viewed with considerable pleasure. The specimen is a fetus, brought from Moreton Bay by Dr. Hobbs, who is now in Sydney, and was taken from a dugong twelve feet in length, and about eight or nine feet in girth. Of the conformation and habits of this animal we are indebted to Dr. Hobbs for the following particulars:—The dugong resembles somewhat, in shape and size, the porpoise; but is unlike it in having no dorsal fin. The hide, or skin, in its dried state, although much thicker, partakes of the character of pig skin; and, if tanned and prepared, would, doubtless, make good saddles. The bones—a specimen of which may be seen at Mr. Elliott's—are very heavy, of the same specific gravity as ivory, and take a beautiful polish; when struck together they give out a metalliferous sound, indicating the density of their structure, and reminding one of the bones of Behemoth, which were "like bars of iron." The eyes are very small and deeply set in the head, like those of a fat pig. The ears of the specimen now in Sydney are very small, and resemble rather holes made by a pin than ears; but in the full-grown animal these holes (auditory canals) are protected by the skin, which is thinnest over these organs. The tail is like that of a whale; and as the fins, one on either side, are so very small in proportion to the size of the animal, it is evidently the principal propelling power. The dugong is a graminivorous ruminant; by means of its large lips the long blade grass growing on the banks in shallow water is plucked off and conveyed to the mouth, the roof and floor of which are curiously covered with circular tufts of short bristly hair, resembling two shoe-brushes which have been almost worn down to the wood. The design of this is very evident: the thin blades of grass could not be retained in the mouth were it not for this arrangement. The tongue is short, thick, and small; in the upper jaw the bulls have two front teeth or tusks; the females (cows) have none. The grinders are like those of the ox. The stomach is precisely similar to that of ruminant animals in general—full of grass of various degrees of fineness, indicating more than one mastication, and innumerable long worms, like those found in horses occasionally. The heart is like the whale's, double. The lungs are of great length, and of great capacity. The mammae are beneath the fins, as in other mammalia of that class. In rising to blow, the dugong exposes less of the body than the porpoise, and at a distance might be mistaken for a turtle. The meat of this animal

when fresh is very tender and savoury; its muscular fibre is very short, and easily masticated. To persons suffering from weak stomachs the dugong meat would prove a very nutritious and easily-digested article of diet. With such an animal, and such a climate as that of Moreton Bay, what more could an invalid require? The mode of capture for commercial purposes is by long nets; but when sport is the object, the harpoon is used. It is whaling, in fact, on a small scale; and, as a sport, it is as exciting as fox-hunting, without the noise. The oil procured from this animal is very sweet compared with other animal or fish oils; and although no one would take oil from choice, yet, compared with cod-liver oil, and other medicinal remedies, it is palatable. Its principal action is that of a tonic in the debility occasioned by chronic disease, or in general constitutional debility of the young or aged.—(*Sydney Morning Herald*.)

EXTRAORDINARY DISCOVERY.—About ten days ago, the navies excavating for a cutting at about a mile on the extension of the Newcastle Railway line, struck, at a depth of sixteen feet six inches below the surface, upon a small block of sandstone, which was broken by one of their picks. To their surprise, it was found to contain a tortoise alive, and when exposed to the air, exhibited lively symptoms of animation. Its mouth was firmly closed, as if cemented; its means of sustenance will, therefore, be a matter of curious inquiry. It was closely imbedded in its little case, without the smallest room for movement, the sandstone being strongly marked by its claws. In the sandstone in which this small cave was discovered, there were also found, imbedded around it, a number of fossils, upon which were curious figures of leaves, plants, &c., most of which were unknown to the various scientific gentlemen who, immediately on the report of this singular discovery being made known at Newcastle and Maitland, hastened to the spot. Amongst these was Mr. W. Keene, a geologist of some authority, who has devoted much attention during the last few years to the fossils found in the bed of the valley of the Hunter. He pronounces this to be a discovery which will raise many new disquisitions as to the age of this continent, and one which will (indeed, if that were needed) entirely disprove the theory of the author of the "Vestiges of Creation." Mr. Whitton, Engineer-in-chief of the Department of Internal Communications, took charge of the tortoise, and showed it to Sir Daniel Cooper, who immediately took it to the Governor-General. His Excellency reported the discovery to Mr. William Macleay, and requested his opinion upon it. Mr. Macleay describes the tortoise to be one of a species very commonly found in many parts of the colony; and he adds, that it has every appearance of being young; another singular feature in the matter. Sir William has had the tortoise placed in the aquarium at Government House, where it is as lively as any of its companions. The portions of its little cave were taken possession of by several of the *savans* who were attracted to the spot when the discovery was made known. His Excellency, however, has sent peremptory instructions to have all the pieces restored, with a view of their being carefully examined, and placed in the Australian Museum. From the careful inspection made by Mr. Keene, and other gentlemen, not a vestige of the most minute opening in the stone is discernible; but as further inquiries and examinations will be made when the portions of the little cave are brought to Sydney, together with the fossil specimens found on the same spot, and as the official report will then be published, it would be useless at present to indulge in speculative opinions. We should have mentioned that one of the navies, working near the same spot, came upon a lump of quartz, in which he found a spec of gold.—(*Sydney Morning Herald*, Feb. 2.)

DECAY OF THE TASMANIAN NATIVES.—In the year 1815 the number of aborigines in Tasmania was estimated at about 5000; and in five years they were reduced to 160 females and 180 males. In 1831, when Mr. Robinson undertook to conciliate them to the protection of the Government, there were 100 males and 96 females. In four years he had succeeded in inducing all to give themselves up; and they had been forwarded by Government to a station specially provided for them on Flinders' Island. But during that period 73 died; and when, in 1847, the remnant was removed to Oyster Cove in D'Entrecasteaux's Channel, they numbered only 45. Three years ago only 16 were left. Of these, 11 were women, their ages varying from 30 to 55; three men aged respectively 30, 55, and 30; and two boys about 16 years each. It is, therefore, more than probable that, in a few years, the race will be altogether extinct. Of these people the only knowledge we possess is derived from a few imperfect

articles that have appeared in portions of the public press, and some scraps in a magazine formerly published in connection with the Royal Society; although, to a recent date, the secretary of that Society, Dr. Milligan, held a Government sinecure worth some £400 a-year as superintendent of the aborigines; and therefore it was reasonable to suppose that, through the medium of the Society, some valuable information would be given to the world.—(*Sydney Morning Herald*.)

TEAK (*Tectona grandis*).—This invaluable wood has occupied at least two-thirds of my own time during the past year. Along the whole length of the Malabar coast, from Goa to Cochin, there is now very little of this wood in a ripe state on Government land below the ghauts; and there are only three localities above the ghauts where I found Teak in abundance, and of good size—viz., 1st. The Anamallay Forest, in Coimbatore; 2nd. Wynad and Heggadevencottah (partly in dispute between Mysore and Malabar); 3rd. Goond Tableau, North Canara, near Dandellie. The Anamallay Forests have been the subject of annual Reports to Government since 1848, when their importance was first declared by Captain F. C. Cotton (*Madras Journal*). The forests of Wynad and Heggadevencottah Teak, on the borders of Mysore and Malabar, are of great value, and stand second in importance. The average price of Teak at the quarterly auctions held at Mysore has been almost exactly the same as at Anamallay—about one rupee per cubic foot. The Canara Teak is of much smaller scantling than that of Wynad. It has the advantage of water-carriage to the coast, not possessed by the two last; but it has for some years been chiefly obtained for naval purposes from the banks of the Kalla Nuddee, where it emerges from the Soopah Hills, and the supply has gradually been sent down from more distant localities, as in Malabar, where the Teak is now cut by the Teroopaud of Nellumboor, just under the Neilgherry Peak. The Goond Forest is the chief remaining reserve in Canara. I saw here several thousand trees on an elevated plateau with precipitous sides. The trees are well grown and ripe, conserved by their inaccessible position, which has been rarely visited by Europeans.—Poon spars (*Sterculia foetida*) are becoming very scarce, and, consequently, are perhaps more valuable than Teak; young ones, especially such as are in accessible places, are most carefully preserved.—Blackwood (*Dalbergia sissooides*). This valuable wood has risen much in price. Indents were received during the year, both from Madras and Bombay gun-carriage manufactories, each for five thousand cubic feet. There is not much Blackwood remaining in the Anamallay Forest; but there is a considerable quantity in the escheated forest of Chennai Nair; and it is abundant in the Wynad and Coorg.

SAPPAN WOOD (*Cesalpinia Sappan*).—This important dyewood has engaged my attention. It appears to grow with great luxuriance in South Malabar; and is cultivated rather extensively by the Moplahs, who plant a number of the seeds at the birth of a daughter. The trees require fourteen or fifteen years to come to maturity, and then become her dowry. I saw more on the banks of the Nellumboor river than anywhere else; why it should be there in particular is not obvious, as Malabar is generally uniform in its character. A better system of cutting and cultivating the Sappan is desirable; and the dyewood is damaged, I believe, by being allowed to float in salt water.—The Sandalwood tree (*Santalum album*) in Mysore, Canara, Coimbatore, Salem, and a little in North Arcot, has received much attention. It would appear that the spontaneous growth of this tree has increased to a considerable extent.—The "Gutta Percha tree of the Western Coast" (*Isonandra sp.?*), so called, has been traced from Coorg to Trevandrum. All the reliable information procurable has been condensed into a memorandum; and a large sample has been transmitted to England for report as to its suitability for telegraphic and other purposes.—Catechu (*Acacia Catechu*). The enhanced value of cutt has caused an unusual destruction of the tree.—(*Dr. Cleghorn in Scottish Gardener*.)

GREEN FLY, AND ITS DESTRUCTION IN THE HOP PLANTATION.

THE cry we hear in all quarters, "Have you heard of anything new?" is not confined to one particular class. A hunting after novelty seems as much the rage of the present day as it was amongst the Grecians of old. New discoveries in science or travels, new applications of the arts, new plants introduced, and, it may be, new diseases,

seem all eagerly-inquired after; and, of course, like every other demand made on a commercial public, there is a supply. John Bull's inquiries are met in every instance,—whether satisfactorily or not I do not mean to say; but his demand for new things, merely because they are new, too often tempts the unprincipled or needy dealer to furnish him with a spurious article. Something old and obsolete is palmed upon him as new; and so long as he can be made to think it is so, the deception continues. But there is generally a day of reckoning, in which the just value of everything is taken into account; and an article no longer new is discarded if not possessing sufficient value. My purpose here was not to dwell on the many new inventions of the day; neither on the new plants added to our lists; nor yet on the new diseases by which, it is said, plants and people are attacked. My purpose is to make inquiry, through the columns of THE COTTAGE GARDENER, whether something cheaper than the article at present in use cannot be had for destroying one of the classes of insects so fatal to vegetation in its early growth—the green fly and its allied species.

Now, I expect many fruit and plant growers will say that either tobacco smoke or its liquor will destroy green fly fast enough. I grant this: but I want to know if something cheaper than this could not be had to destroy the same class of insects when they attack plants grown on a more extensive scale, some of which suffer very much from this pest. The plant to which I particularly call attention is the Hop, which suffers more from insects, mildew, and similar misfortunes than any plant I know. In fact, so exceedingly uncertain is this crop from these causes, that no one can tell, until late in the season, whether they are likely to have a crop or not; as the same means used one season will perhaps be rewarded with a good crop, while only the preceding one was a total failure. Take for instance the growth of 1854, which produced a crop realising a duty of only £47,369; while the year after (1855), the duty was £398,365, from very little more ground—the crop of the first year being about eight times as much as that of the other; and, in some particular places, was quite twenty times as much.

This difference is, in no respect, due to cultivation; because, in most cases, it was alike in both seasons. The real causes were insects and mildew; the latter, in local phrase, being called “mould.”

A crop which, on the average of the last ten years, may be regarded as worth upwards of two millions sterling annually, is assuredly worth trying experiments with in order to ascertain if something cannot be done to remedy the evils it is liable to during certain seasons. Many spirited growers have turned their attention this way; and prior to 1855 sulphur was used rather extensively as a remedy or preventive of the mould. Since then, this evil has not been so serious; but it is so capricious in its attacks, that it is quite possible it may visit the Hop garden, for two or three years in succession, with its hitherto-incurable vengeance; for the evidence of those using sulphur as a remedy is so conflicting, that its efficacy is far from being confirmed.

Allowing, however, this article to be used again, or something else in lieu of it, let us see what can be done to destroy the insects which harbour and feed on what may be called the very vitals of the Hop plant at the early period of its growth, and which too often cripple it so as to leave no chance for a crop; naked poles, with blackened unhealthy shoots half way up them, are all that greet the grower the whole season.

It is somewhat strange that this evil is rarely repeated the next year; while mildew, or mould, has been known to destroy the crop wholesale for several years in succession.

As some remedy for the fly may, perhaps, be found cheap and efficacious, a slight glance at the requirements of the case may enable some of our chemical friends to help us out of the dilemma. To enable them to have a

just view of the matter, it is right to say that the plantation of Hops, at the present time, extends over fifty thousand acres; so that, whatever article they recommend, should be one that can be had in unlimited quantities and at a very cheap rate. Infusions of tobacco, mixed with soft soap and other things, have been used as a wash, applied by the syringe; but their expense precludes their general adoption. What is wanted is, some cheaper liquid that could be applied in the same way; or some powdered substance which could be thrown over the infected plants.

Assuming that a liquid is the most suitable form of applying the remedy; from what could this liquid be made? Most mineral substances are injurious to plants as well as to animals, if they are hurtful at all. We must, therefore, turn to the vegetable poisons; and, amongst those that are grown at home, assuredly something might be had, which, either by boiling, or scalding, would yield a liquid at once fatal to animal, and yet innocuous to vegetable life. Poisonous plants are not so uncommon amongst us: and if they are found to be of service to the Hop grower, they could easily be cultivated to the required extent. In wild plants, we have the Hemlock, Henbane, and Deadly Nightshade, all fatal, in a high degree, to human life; while many others are scarcely less so. If some enthusiastic Hop grower were to collect a good bunch of these, and boil them separately, and syringe a few plants with each, and note the result, it is very likely he would find them beneficial. Then we have the Common Laurel, the juices of which are also pernicious; and the Rhododendron and Yew, perhaps, still more so. So that experiments might even be made with them; and the common Potato-top is a much more deleterious substance than is generally believed. I have seen an infusion of it used for the destruction of green fly many years ago.

In fact, there are so many plants which may communicate the required property, that I should like some chemical correspondent to give us his opinion in the matter. At the same time, it would be better if he confined his inquiries to home productions, unless that of foreign growth can be had at a cheap rate.

Although I have advised the use of a vegetable poison, I am by no means certain that a mineral one could not be had equally useful; but as the former class are powerful enough, and, in a general way, plentiful, they may, perhaps, do better. We are told by Dr. Livingstone, that Southern Africa produces the tree from which nuxvomica and the still more deadly strychnine, are made,—vegetable poisons extremely powerful; assuredly amongst those we have at home, some one or other might be found as an antidote to the scourge of our Hop plantations, as well as to many other crops which suffer from the like cause. I, therefore, call on our chemical friends to assist us in this matter by their advice. No one will be more grateful for such assistance than the Hop growers, who, as a body, are, perhaps, the most enterprising of all classes of cultivators of the soil; but who, on the other hand, suffer more by those reverses, over which they have hitherto had little or no control. Any advice that would enable them successfully to combat one of the great evils they are now liable to, will confer a great boon on them, and, at the same time, one on the gardening world also.

J. ROBSON.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 8.)

GRAPES.

EARLY CHASSELAS (*Chasselas Hâtif; Bar-sur-Aube; Krach Gutedel*).—This is very similar to the Royal Muscadine in general appearance, and has, therefore, been

frequently confounded with it; but it is a very distinct variety when obtained true, and is readily known by its very firm crackling flesh, which is richly flavoured. The vine may be distinguished by its small quantity of foliage, which is somewhat hairy, and by the leafstalk being frequently warted.

Early Leipzig. See *Early White Malvasia*.

EARLY GREEN MADEIRA (*Vert Précoce de Madère*).—Bunches of good size, cylindrical, slightly compact. Berries medium sized, oval. Skin of a green colour, which it retains till its perfect maturity, when it becomes a little clearer, but still preserving the green tinge. Flesh with a rich and sugary flavour. This is one of the earliest grapes known, and ripens in a cool vinery from the beginning to the middle of August. It will also succeed against a wall in the open air; but, of course, is not then so early.

EARLY MALINGRE (*Malingre; Précoce de Malingre; Précoce Blanc*).—Bunches of pretty good size. Berries round, inclining to oval, and of medium size. Skin white. Flesh rather richly flavoured, juicy, and sugary. One of the earliest grapes, ripening in a cool vinery in the beginning of August; and, in the open air, against a wall, it is the earliest white grape. The vine is a most abundant bearer, forms a handsome bush, and is well suited for pot culture.

EARLY SAUMUR MUSCAT (*Muscat de Saumur; Madeleine Musqué de Courtiller; Précoce Musqué*).—Bunches rather compact. Berries medium sized and round. Skin white, assuming an amber tinge towards maturity. Flesh firm and crackling, rich and sugary, with a distinct, but not strong, Muscat flavour. This is one of the earliest grapes, ripening with the Black July, from seed of which it was raised. The vine is an abundant bearer. It is an excellent grape, and may be grown either in a cool vinery, or against a wall in the open air.

EARLY WHITE MALVASIA (*Grove-End Sweetwater; Early Leipzig; Morna Chasselas; White Melier; Melier Blanc Hâtif; Blanc Précoce de Kienzheim; Précoce de Kienzheim; Früher Leipziger; Weisse Cibebe*).—Bunches rather large, six to eight inches long, loose, tapering, and occasionally shouldered. Berries large, round, inclining to oval. Skin thin and transparent, greenish white, but becoming yellow at maturity, and covered with white bloom. Flesh abundant, very juicy, sweet, and with a rich flavour. Ripens in a cool vinery about the end of August, and also against a wall in the open air.

The vine is an excellent bearer, and succeeds well in pots.

ESPERIONE (*Cumberland Lodge; Turner's Black; Aspirant Noir; Espiran*).—Bunches large and shouldered. Berries large, round, and inclining to oblate. Skin dark blackish-purple, covered with blue bloom. Flesh rather firm than tender, juicy, sweet, and well flavoured; but inferior to the Black Hamburgh.

This is a variety bearing a close resemblance to Black Hamburgh. Its great recommendation is its ripening so well out of doors against a wall, for which it is better adapted, and where it ripens better than the Black Hamburgh, and ten or fifteen days earlier. It is distinguished from Black Hamburgh by its leaves dying off a light yellow colour, and not red.

Finger Grape. See *Cornichon Blanc*.

Flame-coloured Tokay. See *Lombardy*.

Frankenthal. See *Black Hamburgh*.

Froe de la Boulaye. See *Prolific Sweetwater*.

Früher Leipziger. See *Early White Malvasia*.

GOLDEN HAMBURGH (*Busby's Golden Hamburgh; Stockwood Park Golden Hamburgh*).—Bunches large, loose, branching, and shouldered. Berries large and oval. Skin thin, of a pale yellow colour; but when highly ripened, pale amber. Flesh tender and melting, very juicy, rich, sugary, and vinous. An excellent grape. Ripens in a cool vinery, and forces well.

GROMIER DU CANTAL (*Barbaroux; De Candolle; Grec Rouge; Gros Gromier du Cantal; Malaga; Raisin du Pauvre; Raisin de Servie*).—Bunches large, a foot long, broad, and shouldered. Berries large and round. Skin very thin, amber coloured, mottled with light purplish-brown. Flesh tender, juicy, and sweet, with a brisk vinous flavour. Requires a warm vinery to ripen it; and it does not keep long after being ripe. In some of the vineyards of France, and particularly in those of Tarn-et-Garonne, it is called *Alicante*.

Grec Rouge. See *Gromier du Cantal*.

Gros Coulard. See *Prolific Sweetwater*.

Gros Gromier du Cantal. See *Gromier du Cantal*.

(To be continued.)

THE CULTURE OF ASPARAGUS.

IN the present advanced and advancing stage of garden literature, it is somewhat difficult to select a thesis to dilate upon, which has not already been a thousand times hacknied, and on which so much has not been said as to leave no room for further essay. This is my first attempt—my *début*—in *THE COTTAGE GARDENER*; and at the risk of being prolix, and, perhaps, tautological, I have ventured to write upon Asparagus. My friend Mr. Errington has already given to the world some sensible and sound advice on this subject; and I should not now presume to tread upon his heels in the matter, had I not given it much attention, and had opportunities of seeing the most successful management.

Asparagus is one of the most wholesome and delicious vegetables which we cultivate. While the poor invalid enjoys with zest his scanty pittance of it, the man of more stamina, whose health can permit him to be epicurean, feasts on his lamb and Asparagus; and from the cottage to the palace, it is accounted the prince of kitchen vegetable productions.

It is customary in many old places, to have cultivated Asparagus in one quarter of the kitchen garden, from time immemorial; but, like all other plants, it becomes very weak, and worn out, and should be transferred to other spots, and take its part in the rotation so essential to good culture. It is also customary to take up the roots from old, worn-out beds, and force them; but their produce is always of an inferior kind.

Now, the only plan to ensure good and really fine Asparagus, is to make what the French call a *spécialité* of its culture—to grow it purposely for forcing alone, and never to cut the shoots from the roots intended for this purpose.

It likes, as a soil, a good loam, with abundance of manure, with which latter substance it may be made to flourish in ordinary garden soil (if well drained). It should have three years' cultivation; and if this is good, it will in that time have formed magnificent roots, which, if taken up carefully, and planted in a hotbed, will amply repay the trouble by their superior produce. By planting a piece of ground for this purpose every year, and taking up some, there will always be fresh ground occupied with this crop, and ground which has been used in its culture coming in for other crops. A great advantage in one's routine.

There are, in most of our directories and gardening calendars, remarks on forming Asparagus-beds. In them the directions are given for planting in the month of March, which I have no hesitation in pronouncing the worst month of the whole year. It is then dry to the extreme; and nothing is more tender and susceptible of injury from exposure than these roots. Many years ago, my friend, the late worthy John Wilnot, remarked to me the prevalent error in this respect, adding, "I don't plant mine till June." Since I had this hint I have not planted mine till the end of April, or middle of May, in showery weather; when each plant has shoots from four to six inches in height; thus making a little allowance for the exuberance of my friend's imagination, and believing that the safest path was in *mediâ*.

This practice I have always found to be most satisfactory—never losing a plant. My plants are placed in single rows, one yard row from row, and half a yard apart in the rows. During the summer the bed is kept hoed and perfectly clean from weeds; and in the autumn receives an annual coat of rotten manure, which is forked in. This process is repeated till the plants are fit for removal; when they are very carefully taken up, keeping the roots covered with damp mats, and scrupulously preserving every fibre of them, for the slightest laceration of these organs is

eminently injurious. By attention to these little matters we are enabled to have Asparagus in succession from November till May; supplying, in the month of December, 200 heads a-day for weeks together. When placed in frames for forcing, the roots are covered six inches deep with sifted leaf mould.

We are not, in a general way, behind our neighbours, the French, in gardening matters; and if we had their climate we should much excel them: but we have, undoubtedly, much to learn from them in forcing Asparagus, as the beautiful bundles of it we see in Covent Garden Market abundantly testify. I was much surprised in October, 1857, to see, in the shop of M. Jarrin (the Solomon of Paris), magnificent bundles of a beautifully green colour, from eighteen inches to two feet long; and this, too, at a period when the plants could securely have gone to rest quietly in our country.

In the gardens of the Palaces at Versailles and Fontainebleau, the forcing of this vegetable is carried on to a great extent for the supply of the Imperial table. There is abundance of good ground, most extensive ranges of pits, and no end of manure—the dung of two hundred cavalry horses being at their disposal. This appears somewhat marvellous, but is nevertheless true; and the gardens seem to be a mass of rich humus. In such a place we may conceive that Asparagus is “at home.” It is planted in rows three feet six inches apart, and two feet apart in the rows, plant from plant. There it is left, and the next autumn receives another heavy dressing; thus getting only two years’ cultivation instead of three—its superior progress being assisted by the climate and the richness of the soil.

At the time when the autumnal dressing of manure is forked into the beds, a foot of soil is taken from the alleys and superimposed upon the beds; and this operation, performed twice, gives two feet, or more, for receiving hot dung for forcing the plants. Now, they put upon each bed rows of small wooden boxes with lights, which preserve the young and tender grass from inclement weather, while they admit to it abundance of light. Having a considerable depth of soil to come through, the Asparagus is long and white, and is called *Asperges blanches*; the *Asperges vertes* being produced from younger roots forced in a frame.

It has long been fashionable in gardening periodicals to extol the use of salt as a manure for Asparagus. This I believe to be a mere nostrum, having repeatedly tried it by salting some of my rows, and leaving others unsalted; and then being forced to the conclusion, that there was no appreciable difference between the salted and the unsalted plants. That, if persevered in, it destroys weeds, I admit, and also that it is prejudicial to slugs, &c.; but that it had any effect on the luxuriance of my plants, I flatly deny. But this might have been owing to the soil having in it an abundance of saline matters, from the heavy manuring which it had received for several years.

There may be soils, which are deficient in some inorganic and saline matters, in which it may assist in building up the vegetable fabric, and to such soils an addition of saline principles may be useful; but to such as are already amply supplied with them, the addition of common salt is certainly not a *sine quâ non*.

The springing up of the Asparagus reminds me that this delicious vegetable is now in full season. Those who have bestowed good culture on their plants will now be rewarded by fine produce. Those who are less fortunate may at once commence operations by heavily manuring and deep trenching of the ground.

I cannot illustrate in a more forcible manner the richness of soil required for growing Asparagus well than by referring to the land rented by Messrs. Myatt, of Deptford, than which I know of none more replete with manure.

Having learned much of their Asparagus culture during my visit to Paris in 1857, in order to be, as I thought, quite *au fait*, I purchased a French treatise, announced as “*Asperges Culture, Naturelle et Artificielle*.” Par Leisel, Directeur des Jardins de Marquis de Clermont Tonnerre, et Membre de la Société Nationale d’Horticulture de Paris. I was pleased at having purchased this book; but upon reading it, which I did immediately after, I was thoroughly disgusted at the too-apparent book-making, the vanity of its author, and his constant tautology. There was very little practical information; being apparently made, like Peter Pindar’s razors, “to sell.”

I find that M. Leisel recommends sowing the seed one year, transplanting the young plants the following spring, and then giving them two seasons’ good cultivation—forcing them in ground unmanured by merely putting small frames over them, with dung

linings in the alleys. Two years’ culture in the climate of France must be equal to three in this country, and the more powerful sun must send the roots to rest sooner in the autumn; thus enabling them to be forced, as I saw them in October, when our beds were still green and growing. When I saw the beds of Asparagus at Versailles they were a perfect mass of Chickweed, with the alleys as neatly raked as the beds of a trim flower garden. There I would caution my amateur readers not to imitate *monsieurs*; for it entails endless labour, and robs the ground of the rich food which the Asparagus should have to itself.

It has often occurred to me, that it would be a great advantage if we could have a retarded supply of this splendid vegetable. Of course, this must be furnished at the expense of ruining the bed, and would not suit the amateur; but, in large gardens, how valuable would Asparagus be in July and August; but such, as I have just said, would involve the loss of a bed. I think it might be produced in this way, allowing the first shoots to grow up for some time without cutting, and then cutting it all down close; after which it might receive a good portion of liquid manure, and would, probably, yield a quantity of Asparagus.

There are certain garden crops which seem to be dependent for their excellency, for their succulency, and crispness of flavour, upon their rapid growth; and this cannot be produced but by the agency of liberal investments of manure. Asparagus is one of these. When grown in poor ground, it is tough and wiry; but when in rich soil, it is tender and delicious. So, also, with Celery, the peculiar nutty flavour of which is much enhanced when grown in a solid spit of rotten muck; and so, also, with the Cauliflower and Cabbage.

In the case of farming, limits appear to be set in manuring for crops. There is a certain mark, or point, of condition, beyond which it is not profitable to go; but the gardener, whose produce is enhanced by its luxuriant growth and tender tissue, can rarely use too much manure, in reason.

The Asparagus plants seed most copiously, and the seedling plants become troublesome weeds in the beds. Considering how much the energy of every plant is directed towards fulfilling the object of its reproduction, it might be well not to allow the plants to perfect the seed, by gathering the young berries, and not allowing the plants to waste their energies in its production, but allowing them to treasure them up for the production of the young shoots.—HENRY BAILEY, Nuncham.

QUERIES AND ANSWERS.

QUEEN STOCKS TO BE SUCCEEDED BY GERMAN ASTERS.

“I have a large circular bed filled with Queen Stocks just coming into bloom; when over, I intend filling the bed with German Asters. Should I get a better bloom of Stocks next year by leaving the present plants where they are, or by raising fresh plants?”—KATE.

[If you could make sure of the Stocks surviving the winter, and the plants are blooming now for the first time, you might have a fine display next season: but there is an uncertainty. If your Stocks are not very thick in the bed, what would you say to pruning them pretty well in when done flowering—forking some good, rotten dung in amongst them—and then bringing your Asters, with balls, from an intermediate bed, and filling up according to your taste? The shade would not do the Stocks much harm, unless the Asters were planted very thick. You would then see how many of your Stocks would stand at Midsummer.]

VINES IN POTS NOT FRUITING WELL.

“I have a small house filled with pot Vines, all *Black Hamburghs*. They are three years old. They were started the beginning of the year. They have all received the same treatment. Nothing can look more healthy than they do; but only two Vines out of the lot are fruiting well—the rest have but one or two bunches each. I do not use liquid manure; but the Vines had a top dressing of good manure soon after they were started. Can you tell me the reason why I have not a better crop?”—M.

[As the Vines are looking so healthy, and we presume all the buds broke freely, that is a sure sign that the present management has been all right. The mere giving or withholding manure

water would not cause them to show fruit, or remain fruitless, though it might make a difference as to the strength of the Vines, and the size of the bunches. Sometime ago we were asked by a gentleman to look at his Vines, as he was afraid his new gardener did not understand them; as, though they seemed in the highest health as to growth, there was little or no fruit. Every bud had broken strongly; and there seemed no appearance of the Vines having received any check, as there was no sign of bunches having shown, and then gone off, either from mismanagement, or the state of the roots. We could, therefore, conscientiously, take all the blame off the new gardener's shoulders, as, if there were no incipient fruit formed in the buds, no treatment of his after Christmas, could bring or place it there. It turned out that there had been no regular gardener in the autumn, and that, consequently, the Vines were allowed to grow wild, and the border was neglected as to watering, &c., though the roots were near the surface. Now, there, in our opinion, was the cause of the failure. It is useless to expect Vines to fruit this year, unless the foliage was fully exposed to light, and the wood was thoroughly ripened, and then rested the previous season before stimulating to fresh growth. We have seen Vines in pots growing in a perfect thicket, —a capital plan for getting good, long rods,—and when hardened out of doors in autumn, becoming ripe enough for planting in fresh houses. But we should never expect to see fruit produced from such plants. Many of the admirers of Vines in pots treat their plants, not exactly, but a good deal in the same way. They are started into growth beneath some other plants; and because they look healthy enough there, they remain under the shade for months, and grow luxuriantly, making fine parasol foliage. The importance of light is not quite forgotten, and, therefore, towards autumn the plants are moved, perhaps right out of a shady house, to the front of a house or of a wall; and when they stand there until the leaves fall it is considered the wood must be thoroughly ripened; and great is the dismay next season, when such fine, long rods, though they break regularly by good management, refuse to show bunches in any quantity. Fewer plants might be so grown; but less disappointment would be experienced, were it always kept in view, that the wood of a Vine from which fruit is expected this season should be thoroughly exposed to light, without shading, during the whole of the growing season of the previous year; continuing that exposure to light until the leaves become yellow, after which the cooler and darker the plants are kept before starting the better they will do for early forcing. Vines in pots fruiting now will ripen their fruit very fairly on a stage, with a shade of Vines, or anything else not over-thick, above them. But from such shaded plants we should expect to get little or no fruit the following season. We suspect that either undue shade last season, or the want of sufficient ripeness and firmness in the shoots last autumn, is the cause of our correspondent's disappointment. That ripeness is even more essential than luxuriant growth.]

TREATMENT OF YOUNG VINES IN A VINERY.

"I have just erected a curvilinear-roofed vinery, and have half a dozen Vines from Mr. Rivers, which are now just beginning to open their buds. I am at present without an experienced gardener, and, therefore, would thank you to give me the information I am in need of. What is best to be done with the side-buds? Should I nip them off, and let the topmost bud be alone trained up the stout wire? If so, should it be done immediately? I left it to Mr. Rivers to send me which he thought best—Vines from eyes, established two years in pots, or strong for fruiting. He has sent me the former, therefore they are rather small—one or two too short for tying to the iron at present. Or shall I leave a bud on each side to be trained parallel with them? The Vines are not quite four feet from one another, and the two end ones are about six inches from the ends. I intend not to force the Vines, as I do not wish to get fruit before September, and, therefore, I intend it should be a cool vinery. I find the Vines (some of them) show signs of fruit. Will a bunch left on be any detriment to the growth of the Vine?"—AN EASTERN-COUNTY SUBSCRIBER.

[1. *Age of Plants for Planting.*—Mr. Rivers' decision in this respect is one among many, proving that the judgment of such a man is always to be relied on. We would sooner plant out a strong one-year old plant, than one rising three or four years from the eye. It would have suited Mr. Rivers' purpose better, to have sent you strong fruiting plants instead of nice plants rising two years old. He could, quite honestly, have charged

you double, or more, in price, for the fruiting plants; but then he knew they would not answer your purpose so well, if you allowed them to fruit. The fruiting itself would be slightly endangered by the process of planting out. Fruiting Vines in pots, we should prefer growing in their pots, with, perhaps, an opportunity for the roots to get out through the bottom. For planting a vinery, young plants are best for common purposes. If such a thing could be had, we should prefer having three or four-year-old Vines, not from pots, but which had been planted in a border. These, taken up and carefully replanted, are less likely to send their roots deep than young Vines fresh planted. Never mind about a Vine or two not being long enough to reach your wire for training; place a stick, or a string, against it, and it will soon be long enough.

2. *Nipping off Side-buds.*—We presume that these are the buds along your Vine-stem, all except the terminal one, which you intend to form the main stem of the Vine, or continuation of what you have now. If, in planting, you covered any part of the stem, all the buds on that part should have been cut close off, or shoots, or suckers, will come from that part. As the buds are now breaking, whatever you wish removed should be rubbed off from their sockets by pressing your thumb, or finger, downwards on them. If you cut them off, the part will bleed profusely. Rub them off roughly and there will be no bleeding. Most people remove these buds; and though it may not be a matter of much importance, we should rather advise allowing those nicely placed at the sides to remain, more especially since you seem to have plenty of room for them. We always think that their presence, at least for two or three years after planting, gives strength and bulk to the main stem. The more the top grows, the more will the roots grow. Growth is chiefly what is wanted the first year. We think more, even, of that than concentration of energy. The side-shoots help even concentration. Look at an Oak tree in a park, with its wide-spreading branches, and you are sure to find a stout, firmly knit stem. Examine one of the same age in a thick wood; and though, perhaps, of nearly double the height, the stem will be small in girth in comparison. We do not grow the Vine for timber; but, at first, we must have robustness and growth, to lay the foundation for fruit-bearing. As the buds are on these young Vines, and growth of stem is desirable, leave them in the meantime. The terminal bud will take care of itself, and monopolise the chief strength. To encourage it to do so, secure it carefully from being stopped, and let every lateral on it grow a joint or two before stopping. To throw this extra strength still more into the main shoot, stop all the shoots, from these side-buds left, when from six to nine inches in length. These shoots, which may form lasting spurs if desirable, will thus not hinder the free growth of the main shoot. Their presence, at first, will not only encourage free growth, but will add to the thickness of the main stem. We are supposing that these shoots from the side-buds, can have free exposure to light. If not, they would then be more in the light of robbers than assistants and providers. If you mean to have anything below your Vines, it would not be advisable to have more than one stem to each. The side-buds, if left, should, therefore, be stopped. If one or two were allowed to grow without being stopped, you would divide the strength of your Vine too much, and would be forced to cut the stems away afterwards. As advised, you will encourage root action at first, and add to the substance of the main trunk of the Vine. As laterals grow on the main shoot left, that will keep up rapid growth at the roots.

3. *Leaving Fruit.*—If you leave any at all, it should only be a dozen of berries or so, to prove your kinds. If you are wise, for the future you will cut back your Vines well the following year, and be content with three or four bunches then. We have sometimes taken a full crop the second year, and found the Vines required years to bring it round.]

HEATING A WALTONIAN CASE.—RAISING SEEDLINGS IN IT.

"In using gas for a Waltonian Case, will you please to say what you consider sufficient ventilation? The case is three feet from the window, which is open a greater part of the day; and the funnel at the back of the case is about six feet from the fireplace. Do you consider this enough?"

[Certainly not. A pipe from the back flue of the case must go out full into the open air, no matter how the windows are.]

"I sowed some *Oenothera Drummondii nana*; part have made their appearance, but are very spindly, and almost laid flat. The thermometer, when placed on the bed of silver sand, has registered not more than 80°, and when suspended a little off the bed about 70°."—JOSEPH WOOD.

[You used 20° too much heat for these seedlings. To raise seedlings in a Waltonian Case is just the same as to raise them on a hotbed, only no dirt or danger from bad smells. There is nothing to learn about Waltonian separately, practice is the only thing you want.]

TO CORRESPONDENTS.

MARANTA PARDINA. — R. F. says, "Mr. Appleby, in THE COTTAGE GARDENER, No. 529, page 265, classes *Maranta pardina*, with the evergreens; whereas, I have found it now for two successive years to be quite herbaceous. Last November, my plant died down completely, and so remained for nearly four months, after which it began to grow; and now it has several leaves, some of which measure nine inches."

GAS INJURIOUS TO PLANTS (*A Constant Subscriber*).—Coal gas is very injurious to plants; but the leaves of your *Cineraria*, dying only at the bottom, suggest that want of moisture at the root, and in the air, was the cause of injury.

CHEMISTRY OF THE WORLD (*Charles Morris*).—It treats of the composition of plants, their food, and other topics, about which you inquire.

WIREWORMS (*Siler*).—Your specimen is the larva of *Elatér lineatus*, or common Click Beetle. No mode of eradicating it is known. Gardeners trap them by burying pieces of Carrot, &c., in the soil among their crops.

ANEMONES FAILING (*J. A. E.*).—The Anemone is very capricious. Thus, in a low-lying situation, on the same bank of the river Ichen, we know two carefully cultivated gardens in which this flower will not grow, and a third in which it flourishes. These two gardens where it fails are very much more enclosed, and nearer to a town than that in which it thrives. On higher and better-drained, and fully-exposed situations within two miles of those gardens, it blooms and flourishes admirably. We consider an open situation, freedom from smoke, a light, well-drained, and moderately rich soil, indispensable for the Anemone.

ROOT-PRUNING (*Idem*).—Root-pruning of fruit trees should be done early in the autumn, and not in the spring. Nor can we advise you as to whether such root-pruning would tend to the production of fruit-buds in your trees. It would be useless, unless the trees are over-luxuriant. Taking up the trees in autumn, and planting them on mounds of lighter soil placed on the surface of your clayey ground, would be better treatment, probably; but we have not sufficient information on which to found an opinion.

SEEDS TAKEN FROM GREAT DEPTHS (*J. M.*).—If you refer to page 217 of our last volume, you will find some remarks upon the length of time plants will retain their vitality; and at great depths from the surface oily seeds have been preserved for ages. How the seeds, probably, were deposited there, no one can tell; since no one, without examining the strata, can suggest whether the soil in that particular locality has been subjected to inundations and deposits. It is a wide field, and open to much very interesting dissertation.

GARDEN PLAN (*H. Waller*).—We regret that we cannot undertake to have garden plans drawn for you. As you are willing to pay for one, why not apply to a landscape gardener?

ANTS (*A Lady Subscriber*).—These may be banished by sprinkling guano over their haunts. As they are in your kitchen, the strong smell of the guano might be offensive. After it had answered its purpose, chloride of lime, or bleaching powder, would remove that smell.

SEEDLINGS OF TOM THUMB GERANIUMS (*Rose*).—Seedlings from *Tom Thumb*, are not *Tom Thumb* seedlings, but, probably, crosses from *Tom* by, it may be, half a score of other kinds. If you could insure genuine seedlings from *Tom*, they would answer instead of the parent. They would be the nearest to the parent of all the kinds we possess. But *Tom Thumb* has never yet produced a seedling quite as good as itself. You should consider twice before you throw away anything so near planting-out time. Some one may fill a gap with your seedlings; and who knows but the very best bedder is in that pot? Take great care of them, plant them out, and let them prove what they are.

ROSE INSECT.—*Louisa* is informed that the little grubs which she found eating the leaves of her pot Roses in her greenhouse are the caterpillars of a plain-coloured, narrow-winged little moth, known scientifically under the name of *Calcephora Gryphipennella*, and which construct for themselves flattened moveable cases open at each end, within which they reside, and undergo their transformations. Sharp eyes and neat fingers are the best mode of eradication in their present state. If you let them turn to moths, you must then look sharply after them on the leaves and stems, or your next year's shoots will be damaged considerably.—W.

GEOMETRIC GARDEN (*An ignorant Country Curate*).—The question is not so much what to plant in such beds as yours, but what you have to plant in them. Convolvulus, and the Canary-bird Tropæolum, are the best climbers for these blocks. A mixture of Geraniums, Verbenas, Calceolarias, Petunias, and Fuchsias near the bottom, is best for the blocks. Two rows of *Tom Thumb*, and two rows of Calceolarias, for each of the longest beds; and Verbenas, white and purple, for the two end beds, would look well—say *Purple King* and *Moët Blanc*.

NITRO-PHOSPHATE (*G. T. W.—Leeds*).—This manure is a mixture of super-phosphate of lime, and any animal substance containing much nitrogen. Blood is much employed for the purpose. Fish oils, sprats, &c., might be used. The cost must depend upon circumstances of which we can know nothing.

COTTAGE GARDENER'S DICTIONARY. (*T. A. K.*).—An Appendix is needed to this, bringing the lists of plants, &c. down to the present time. The copyright of that work does not belong to us, so we can only suggest what is needed.

NAMES OF PLANTS (*E. M. M.*).—Your orchid is *Dendrobium Pierardii latifolium*. (*A six-years' Cornish Subscriber*).—Yours is the snowy Medlar, *Amelanchier botryapium*, a native of North America.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

MAY 25th and 26th. BEVERLEY. *Sec.*, Francis Calvert, Surgeon, &c. Entries close May 3rd.

JUNE 1st, 2nd, and 3rd, 1859. BATH AND WEST OF ENGLAND. At Barnstaple, Devon. *Director*, S. Pitman, Esq., Rumwell Lodge, Taunton. Entries close May 1st.

JUNE 6th, 7th, and 8th, 1859. GLASGOW. *Sec.*, Robert M'Cowan, 17, Gordon Street, Glasgow.

JULY 1st, 2nd, 4th, and 5th. SHEFFIELD. Wilson Overend, Chairman. Entries close the 15th of June.

OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. *Sec.*, Geo. Griffiths, 7, St. Swithin Street, Worcester.

MANAGEMENT OF EARLY CHICKENS.

IF April be—as April mostly is—showery, and cold at times, the chickens will be likely to suffer from damp, and from change of temperature. A few words on the subject may save lives, and may answer queries in anticipation. Birds hatched in January and February will be out now on their grass runs, and will no longer have that constant superintendence and feeding they had when younger. Keep the hens still under the rips. They may be let out with their chickens when the weather is dry, and the sun is out. Even then they must be put under again at evening, and the rip should be covered up at night with sacking, matting, or carpet. When the mornings are very frosty, it is not advisable to let the chickens out, if they are on grass, till the frost is dried off. If they are on gravel, they may be let out at daybreak.

The covering up is not the only warmth that is desirable; you must feed generously, give them milk to drink, give them a little bread and ale night and morning, and the knuckle of a cooked leg or shoulder of mutton, chopped very fine. Let their oatmeal be mixed with warm water, and given warm. Feed them often.

Watch early chickens narrowly. You will see those that promise for exhibition birds at summer Shows. Take care of them, and help them along. Remove all that have any capital defect of comb or claw, or that are hump-backed or crooked. Feed them well for table or market; but do not let them take up ground or place that will pay better for the elect of the brood.

Be merciless in killing those poor little abortions that too often monopolise care for which they can make no return. It always makes us cross to see three or four of these with broken or crooked breasts, legs that form a good letter K, or heads that are always looking round a corner, and to be told how long they lived in doors, how they were reared by hand, and how their miserable existence had been prolonged.

FOWLS SUFFERING FROM CATARRH OR COLD.

"SOME of my Spanish hens have a disease upon them that I cannot grapple with. It is a wheezing, or gurgling, in the throat, with a slight discharge from the nostrils. As soon as their door is opened you can hear them, as if their throats were almost choked up. If you will inform me how to treat them, you will confer a great boon and be entitled to my sincere thanks."—J. B.

[Your Spanish fowls are all suffering from severe cold. In any other breed, we should say it was incipient roup; but Spanish are not subject to that disease. It is caused by sudden and great changes of temperature, and the cure is stimulating food. Give them stale bread, soaked in strong beer, twice per day. There is no doubt of their recovery; but if recovery proceed slowly, give them Bailey's pills.]

APIARIAN NOTES.—No. I.

APRIL.

I AM not aware how it may be with our apiarian friends in other localities, but here I never remember such a season as the present. During the fourteen years that I have been a bee-keeper, never at this time have I known bees in so prosperous a condition. I have nine hives, all of which are extremely forward. In box-hive No. 7, the bees have, throughout the winter, shown themselves as crowded among the combs at the back as at any time during the summer; and, for many weeks, the internal heat has been so great as to cause a roaring which has been frequently heard fifty yards off.

Drones have also appeared very early in two of my stocks: in No. 9, they were flying in and out on April 2nd; and in No. 10, on the following day.

The loss of weight in five of my hives during the past winter, from the end of September to the end of February, was as follows:—

No. 6 decreased	5 lbs. 4 ozs.	No. 8 decreased	4 lbs. 4 ozs.
No. 7 ,,	6 lbs. 6 ozs.	No. 9 ,,	5 lbs. 8 ozs.
No. 10 decreased 4 lbs. 12 ozs.		

The rest were not weighed in the autumn.

The stock which has appeared the most populous (No. 7) has decreased the most; which rather tends to refute the argument of those who assert that, the more numerous the bees the less food they require during the winter. No. 8 has certainly been my weakest colony, and has consumed less than any other. Perhaps in a colder winter the reverse might be the result.

One of the above (No. 6) is a stock which was formed by the union of two very weak families last spring. The bees work beautifully, and show evident signs of an increasing population. Hence is made manifest the utility of the junction of weak hives: had these two been kept separate, in all likelihood neither would have been in existence at the close of summer. In the latter part of last autumn, through the pages of *THE COTTAGE GARDENER*, I requested Mr. Tegetmeier to inform me of the result of his experiments with regard to artificial hives, formed from expatriated bees. He has lately had the kindness to do so; and states that he has been successful in keeping some, or all, alive. It may be remembered that "THE DEVONSHIRE BEE-KEEPER," in his interesting papers of that period, makes frequent allusion to a stock formed by the driven bees of four cottage hives. Being liberally supplied with sugared syrup, a large amount of comb was built, chiefly at the two sides of the box; the centre combs remaining about six inches from the back window. Singularly enough, the great bulk of the bees chose this hollow space for their winter clustering, and were always fully exposed to view; while, in the boxes adjoining, hardly a bee was to be seen. About the 20th of March, a great increase in the size of these centre combs was suddenly made manifest; and from that time to this, wax-working has been carried on vigorously—two of the combs having been attached to the glass on April 6th, and a considerable quantity of the purest honey could be seen glistening in the cells. The temperature was raised in this hive to a higher pitch, and much earlier than in any of the rest—seeming to prove that bees have the power, to a certain extent, irrespective of population, of raising the heat at will to a proper wax-secreting point. This stock bids fair to be one of the best in my friend's apiary. As I rather endorsed Mr. Tegetmeier's opinion as to pollen entering largely as a constituent of the food of adult bees, I must acknowledge that the success of this experiment seems rather to militate against our argument. These driven bees have had hardly any access to pollen at all from the time of their transference to their present domicile, in September, until the middle of February; yet they have remained most healthy, and have shown an advancement equal, if not superior to, that of any other hive I know. The winter has certainly been most favourable for colonies formed under such circumstances; and we must extend our experiments before we can come to any definite conclusion, either as regards the importance of pollen to the adult bees, or as to the advisability of forming artificial stocks, from such sources. In the general run of years such attempts will, probably, more frequently prove unsatisfactory than otherwise.

On Christmas day I captured a queen wasp in a parlour, and kept it alive for many weeks; but never could observe it make use of the moistened sugar with which it was occasionally supplied.

Pollen was largely carried in during the second week in February; and on the 21st of that month, having occasion to remove two hives into town, I went out to do so at half-past five P.M., but the bees were so actively engaged, that a delay of an hour was necessary.

MANAGEMENT FOR APRIL.—If not already done, the bottom boards—more particularly of old stocks—should be removed and cleaned. As the population in a good hive has become pretty numerous, care should be taken to place three or four small wedges on the board or table before putting the hive down; and when the bees have become tolerably quiet, one wedge at a time can be gently removed—by which means none need be crushed. In some seasons feeding might still be necessary; but is not likely to be required this year. It is a good plan to weigh all hives once a week or fortnight; and if a diminution of weight is

observable, and the bees appear increasing in numbers, a few ounces of food will be very beneficial. Particular care will be necessary, should a month or six weeks of cold, cutting easterly winds follow this late most genial period; as breeding has received a great stimulus, and a corresponding consumption will be necessary.

Towards the end of the month, if the weather be still favourable, all strong hives, if appearing much crowded, intended for working on the depriving principle, should be afforded the necessary enlargement of space. But in my opinion it is always better to afford the room at the exact time when required (that is, when the hive really becomes inconveniently crowded), than to do so long before the bees are in a state to take advantage of it: as, in the former case, they will often adjourn in a large body, and at once commence operations; while in the latter a few stragglers only will enter; and it may be a considerable time before the working cluster is, as it were, forced into the empty chamber by the increasing heat and population, which may both have been somewhat checked by the untimely enlargement.—S. BEVAN FOX, *Exeter*.

BEE'S SECRETING WAX.—THE SEASON.

MR. WIGHTON holds the Horatian motto good as to "*tenacem propositi virum*;" and I am sure I wish him every success in the development of his new theory. As he alludes to one or two observations made by me in a former communication, I may mention that I was aware that bees carried propolis and farina on the cavities of their thighs more than fifty years ago; and I note his remarks respecting the species of Nettle which produces a small, pendant, white blossom, and is the constant resort of several species of the wild bees, particularly the *Bombus muscorum*, and *Bombus subterraneus*, &c., for nearly three months after Midsummer. This Nettle, which may be found in almost every ditch in the west of England, I certainly did not give it the Linnæan name, nor do I at present know it; and, therefore, I refer him at some future time to watch these bees on this most common species of the Nettle to be found anywhere.

My apiary, at present, is a very limited one, having a small garden, and living in but a middling bee country; but a few years ago I could muster twenty-six hives in my garden, besides two show-hives *indoors*, leaf hives invented by Huber, and now generally in use by bee-keepers who wish to study the movements in the hive.

During this most extraordinary early spring, I hope some bee-keepers will announce their first swarms. Up to this date I never recollect so forward a blossom on the trees.

I greatly fear a considerable number of days of cold easterly winds are in store, and a dry May—too frequently the prelude to a wet summer. The vernal equinox was a very tempestuous one, with south-westerly winds. This, also, is generally an index of a showery, cold summer.—H. W. NEWMAN, *Lansdowne, Cheltenham*.

OUR LETTER BOX.

DEFICIENCIES (Mrs. F. B.).—You are quite right, and we are making arrangements to remedy them.

CREWE POULTRY PRIZES (A. F. Watkins).—Issue the summons from the County Court District Office in which Crewe is situated. Though, we believe, you might issue it from the Court within the District in which you reside. Ask some attorney who practises in your County Court.

FOOD FOR YOUNG CHICKENS (A very Old Subscriber).—"We have given them boiled egg and ground barley for the first week. Afterwards, ground barley only. The result is, the death of one-half of two broods of twenty-two. The crops are full of food and hard."

[You will see some notes on this subject in another column. The sudden change from a mixed animal and vegetable diet, to a diet exclusively vegetable, was bad management. We continue to give chickens chopped egg and shreds of cooked meat until they are a month old; and we prefer oatmeal to barleymeal for them. We also give them abundance of green food daily, when the weather does not permit their running out upon the grass. We give cabbage and lettuce leaves chopped very small.]

ASPECT FOR BEES (A. F.—, Darlington).—Much controversy has been expended on the subject of the best aspect for an apiary; but local circumstances must, after all, be largely taken into account. We have known bees do well in almost every aspect, from due south to north, provided they were not exposed to much wind, and had a clear opening for an unobstructed flight in front, with good protection at the back, either by buildings or a plantation of evergreens, &c. We cannot recommend the use of either ether or chloroform for stupefying bees: neither do we advise you to make any attempt to remove your stocks from one kind of hive into some other. Your straw hives being old and worn out, you had better let the bees swarm, and give them in a new habitation. The old stocks then become available for spoliation in the autumn; the bees being then added to some weak stock, either by the process of driving or fumigation.

WEEKLY CALENDAR.

Day of Month	Day of Week	APRIL 26—MAY 2, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon R. and S.	Moon's Age.	Clock after Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
26	Tu	EASTER TUESDAY.	30.083—29.994	62—33	N.E.	—	44 af 4	11 af 7	33 m. 2	23	2 15	116
27	W	<i>Pultanea obtusifolia.</i>	30.082—29.844	58—43	E.	—	42 4	13 7	17 2	24	2 25	117
28	Th	<i>Passerina grandiflora.</i>	30.054—29.823	65—35	S.	.64	40 4	15 7	58 2	25	2 35	118
29	F	<i>Primula sinensis.</i>	29.591—29.371	60—42	S.W.	.05	38 4	16 7	10 3	26	2 41	119
30	S	<i>Phyllis plumosa.</i>	29.136—29.038	57—33	S.W.	—	36 4	18 7	22 3	27	2 52	120
1	SUN	1st, or LOW SUNDAY. ST. PHILIP	29.110—29.041	56—36	S.W.	.08	IV.	VII.	55 3	28	3 0	121
2	M	[and ST. JAMES. P. A. R. 1850.]	29.296—29.216	56—30	N.E.	.05	33 4	21 7	sets	☾	3 7	122

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 69° and 43°, respectively. The greatest heat, 81°, occurred on the 29th, in 1840; and the lowest cold, 20°, on the 2nd, in 1855. During the period 123 days were fine, and on 101 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

THE plants that are introduced to the conservatory from the stove, forcing-pit, or any other such structures, merely for the blooming season, will require particular care to be taken in the application of water that they may not become sodden and diseased. Continue to stop, prune, or pinch back all rambling and luxuriant shoots in due time. Stir the surface of the bed in the conservatory, and apply fresh soil, to maintain the plants in good health.

AZALEAS, CHINESE.—Supply them liberally with water at their roots during their blooming season, and prevent damp and drip from injuring the bloom.

CALCEOLARIAS.—The herbaceous sorts that have been pushed along in a gentle heat will now be showing bloom, and will require to be grown in a cool, airy place, to prevent the flower-stems from being too much drawn. Keep down green fly. Shift on young stock, keeping the plants well down in the pots as they throw out fresh rootlets from the stem. Cuttings taken off now will root readily in a gentle bottom heat.

CAMELLIAS.—Apply shading the moment it is necessary, to protect the young leaves.

FUCHSIAS.—Grow them steadily on in a moist, warm temperature. Use the syringe freely. Stop any that have a tendency to be long-jointed, to produce uniform and bushy plants.

HEATHS.—Admit air liberally to them, and such other hard-wooded plants that are now in bloom, or approaching that state.

PELARGONIUMS.—Shift on young plants. Any that are wanted for late blooming should now be stopped.

RHODODENDRONS, HYBRID INDIAN.—Treat as advised for *Azaleas*.

STOVE AND ORCHID-HOUSE.

Continue a kindly moistness amongst the Orchids, and slightly increase the temperature. Shade with tiffany, or close-meshed netting, in bright sunny weather; removing it early in the afternoon. Water liberally all that are making free growth. Repot any that may require it as soon as they have fairly commenced their growth. Continue to give liberal shifts to the free-growing young stock of stove plants, slightly shading for a few hours in hot weather, shutting up early in the afternoon, and producing a kindly humid atmosphere by damping the walls, floors, pots, &c.

BEGONIAS.—Repot and propagate. This is one of the most useful tribe of plants that can be grown, both for the stove and the adornment of the conservatory.

CLERODENDRONS.—Encourage by a moist heat.

CLIMBERS.—Keep them neatly tied up, and give them liberal supplies of water, if in pots.

GARDENIAS.—They delight in a close atmosphere; a pit with dung linings is most congenial to them.

GESNERA ZEBRINA.—Pot bulbs for late flowering.

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FORCING-HOUSES.

CHERRIES.—Thin out the fruit where in large clusters; admit plenty of air at favourable opportunities, and never allow the trees in tubs, or pots, to become dry.

FIGS.—The same as last week.

PEACHES and NECTARINES.—Keep the leading shoots regularly tied in, and pinch out the points of some of the stronger ones.

PINE APPLES.—It is advisable to keep all that are starting, or have already started, into fruit, at one end of the house, or pit, that more air may be admitted to them than to the others more advanced, to produce a more robust growth, and to avoid the necessity of using stakes to support the fruit. Air to be admitted freely to the succession plants at every favourable opportunity.

STRAWBERRIES (in pots).—Where fruit are colouring, keep a rather dry atmosphere, with a liberal supply of air, in order to secure flavour. When the plants are in bloom, keep them near the glass, and the atmosphere dry, with a good supply of fresh air; but avoid currents of frosty air. Introduce succession plants under glass according to the demand. Do not expose those from which fruit has been picked to the open air till well hardened off. Give them the protection of a cold pit for a time, as they are invaluable in open-air plantations.

VINES.—The dark, sunless, and cold weather that we have had lately was unfavourable for early Grapes. Where the fruit is on the change to colouring admit air on every favourable opportunity, not forgetting to give it in the morning before the sun shines on the house, to prevent the condensed vapour, which would affect them injuriously, from settling on the bunches. Attend to stopping the laterals, thinning the young shoots, tying in leaders, &c., in the later houses. Remove the top dressing from the outside border, to allow the increasing power of the sun to act beneficially upon it.

WILLIAM KEANE.

MESSRS. J. & J. FRASERS' NURSERY,

LEA BRIDGE ROAD, ESSEX, N.E.

(Continued from page 32.)

GERANIUMS.—These are grown in the best yellow loam of Epping Forest, with very decayed dung, and a little sand. One excellent rule seems to be in practice here with the Geraniums, as well as with all the rest of the stock—and that is, to take cuttings from no plant which is not in the most perfect health; also, to select the cuttings or grafts, as much as possible, of one size and strength. Another essential rule is, when cuttings are to be first potted off, to reject any that do not seem to have rooted freely, or to be in a healthy state; therefore, there is no hospital, no doctoring of invalids, nor puny exceptions. Nothing looks worse, or is more expensive, in large establishments, whether public or private, than to see a whole collection of good, better, and best plants, and a host of others, which are neither good nor indifferent. If great country gardeners and their employers would but

make up their minds to knock on the head, and destroy at once, all young plants that do not promise a fair start, and to cast away old plants as soon as they become foul with insects, or have fallen into bad health through other means, gardening would not be such an expensive luxury as it too often is by elinging to an opposite course.

Every stage of Geranium-growing here has a house for itself; and by the system indicated, every plant in each house seems as if it were cast in the same mould—all strong and stocky; and when you draw the hand over the even surface of the leaves, a rustling like that of new silk is heard. A well-kept Holly hedge would give the same kind of sound.

There are six of the houses united in one block, and each is fifty feet long; the width varies from twelve to fifteen feet; they are span-roofed; stand north and south; have no side lights, and all the roof lights are fixed; air is given by a hinged board on each side of the ridge piece above the end of the lights, and by the doorway at one end only. The uniting consists of the sides on one side of each pair of houses resting on one wall, as some pit-houses are done at the Botanic Garden in the Regent's Park. On the tops of these division-walls are zinc gutters, which empty into tanks inside. This is the most economical plan of building for young stock, for low plants, as Roses and Geraniums, and for propagating and nursing all sorts of plants, and for forcing flowers. A pathway three feet wide runs down the centre of each division; and a platform of solid slate, three quarters of an inch in thickness, runs down on each side of the path, and high enough to allow crinoline and shot silk to pass and repass without the least danger of sweeping down the pots and plants on either side of the way. There are two errors for which hothouse builders ought to be sent to Coventry,—the one is very old, and the other of recent introduction. The old error was, to have the houses inordinately hot; and the new error is, to have the passages so narrow, and the stages so low, that no lady can pass without the risk of an awful crash of crockery and broken plants.

The first house in the said block of houses is full of the fancy Geraniums, and not a stick or any kind of training could I perceive; and if I did not know the contrary, I might conclude that all the plants were of one kind, and all the cuttings had been of the same size and strength. When this, or any house full of Geraniums, or rather the plants, are to be shifted, every plant is watched for a week before the potting, so as to bring the whole into one uniform state of moisture in the balls about the roots—into that happy state which we call neither wet nor dry. That is a grand secret, where the right kind of loam can be had; and the next is, the new mould for fresh potting is to be exactly in the same state. The plant is allowed to begin to want watering just as it is potted; and the old and new soil being in the same state, take the water uniformly throughout.

In November, when Geraniums are first put on their winter allowance of water, a change in their juices takes place. They begin then to be more palatable to the fly, and some come from nobody knows where; but being not expected, and the season, or, rather, the warmth, being not enough for them to breed, they may go a long time unobserved under the young leaves, and play a most dangerous game, which is not made known for months to come: even philosophy itself has endeavoured, in vain, to account in the spring and summer for ravages committed in November and December. Therefore, make it a rule after this to fumigate the "varmint" twice in November, and as often in December and January, with the self-acting Fumigator, which has just come out as if on purpose for this very thing.

The second division was full of bedding, variegated, and scarlet Geraniums—the finest-grown plants in small pots I ever saw. So many of each kind of variegated

were set in front, for edging and for exhibiting a comparison of sorts; *Lady Plymouth* seemed to me the best for edging a show-house. *Wellington Hero* was pointed out as one of the newest and best scarlets with a white eye: I heard before it would make a splendid bedder. *Reidii*, an old one, is, perhaps, the next best white-eyed scarlet. *Orion* is also a very fine free-blooming scarlet, with a large truss. *King of Nepal*; *Mons. Paul Labbe*, a rich rosy scarlet; *F. Chardine*, rosy orange; and *Fraserii*, bright scarlet and large truss, were said to be superior kinds.

The next was the Rose-house—a splendid selection of kinds, and all the new ones, with something new about Rose-growing after all, and here it is:—In the dead of winter, new, or scarce, or any kind of Rose, may be grafted on Manetti stocks, just as Camellias are grafted—tied, and not elayed or mossed. The stock is cut back to five or six inches; and the graft has only two buds. A slice is cut down on the face of the stock near the pot. The slice is cut across at the bottom, and the graft rests on that notch. Three, four, or five rounds of matting are all the tie; and nothing more is done to it. The pots are then put into a close case, in a heat of from 50° to 60°, and get Rose-foreing treatment till the grafts have nearly finished the first growth; then they get no more heat than greenhouse plants till the middle of May. By that time each graft is a full-grown Rose plant, with two shoots of a length, according to the kind. At this stage, or by the middle of April, every eye on each of the two shoots could be grafted. What was new to me is, that suppose you wanted to plant out the new Rose in May with the two shoots, and they very nearly ripe, they are to be cut back, as in autumn or winter pruning, to two, three, or four eyes, and the next start is sure to bloom well in the autumn. Then, by that plan, graft at Christmas, prune and plant out in May, stop the shoots, or the strongest of them, early in July, and expect a full bush in bloom in September. Or, graft when you can in the spring, let the shoots attain their full length; but as early in May as six inches of the bottom are ripe, you may prune, plant, stop, and expect a like result. Of course, a Rose from a cutting differs not the first year from a grafted one.

The best new hybrid perpetual Roses of last year, are, or were, then in bloom, on grafted plants as above. *Oriflamme* is one of the best, a large, very high-coloured, or carmine. *Anna de Diesbach*, another splendid thing; a magnificent bloom of a lighter shade of fine carmine. *Anna Alexief*, salmon; large and very sweet. *Comtesse de Chabrilland*, another rosy or salmon-coloured; of great substance and beauty. *Virginal*, a clear white, finely formed, and very double; the whitest hybrid perpetual I have seen. *Ardoise de Lyon*, one of the Uniques, with a bright red centre, and the outer petals a lavender shade. *Armide*, a florist's Rose; salmon-coloured, and very beautiful. *Beauté de Roygheim*, another unique, shining glossy Rose, white edged and striped; a fine thing. The only Bourbon Rose I marked was *Octavie Fontaine*, a white flower of florist form. Amongst older ones, but still new to many, *Triomphe des Beux Arts* is quite as high as *Géant des Batailles*, and more double than *Général Jacqueminot*, a splendid forceer. Also, *Marie Thierry*, a large rosy carmine. *Louis Chata*, another large rosy kind, and *Duke of Cambridge*, a fine dark red Rose. If all the new Roses hold on so well in the summer out of doors, we shall have another feast of Roses in St. James's Hall.

The next house of this size is brimful of Chinese Azaleas. The next with Ferns, Fuchsias, Gloxinias, Verbenas, Dahlias, and bedding plants; and the sixth and last is a forcing-house, full of miscellanies. The rarest to me here was *Anopterus glandulosus*, a fine New Holland plant, which one seldom sees. It is of the Escallonia order, and flowers in spikes, like *Andromeda floribunda*; but the flowers are twice the size of those

of the latter, and the leaves are as large as those of the white Camellia.

Among subjects extensively propagated for sale are, *Dendrobium nobile*, *Thyrsacanthus rutilans*, all the Silvery and Golden-leaved Ferns, *Farfugium grande*, *Rhodochiton volubile*, *Tropæolum elegans* and *Brilliant*, *Adiantum Wilsonii*, with fine broad leaves; the finer Gloxinias, Gesneras, and Achimenes. Of the latter, *Meteor* and *Rosea magnifica* are the two best of the newest last year. Also the fine-leaved Begonias, *Clematis lanuginosa* and *Mimosa prostrata*, for a summer out-door climber, like Maurandias, Lophospermums, and such like; and most strangers point to the white bracts of *Mussanda frondosa*. In this same house *Scutellaria pulchella*, or *Mexicana*, blooms all the spring, and most of the year round. It should be tried out of doors as a bedder, or good patch plant. It is a dwarf plant with light blue flowers, and may be a *Salvia*.

The next is the young specimen-house—the best house I ever saw for country gardeners to learn what is what. The thick, low bushes of the blue *Leschenaultia* stamp the place; or, rather, make this house the stamp office, for seeing and learning, for registering, and for stamping on the memory the true way to eminence in plant culture for private families. Like all the best practical gardeners in the country, the Messrs. Fraser set their faces against the old, monstrous way of making great shrubby specimens of pot plants. Here are seen the superiority and elegance of *Tremandra ericifolia densa* again; of *Leschenaultia Baxterii major*, over the best of the red ones; of *Pimelia spectabilis rosea*; of *Lapageria rosea*; and of most of the exhibition plants, which are too numerous to specify more particularly. But I must mention one group to introduce a stranger to in this kind of house and culture: *Centaurea candidissima*, the best frosted-silver plant, hardy, or all but such; *Correa cardinalis*; *Cassia Skinnerifolia*, much smaller in leaf and style of growth than *Corymbosa*; *Azalea vittata*, hardy; *Pteroma elegans*, a very hardy greenhouse plant; *Monochatum ensiferum*; *Acrophyllum venosum*; *Aphlexises*, of sorts; and the great stranger, *Caliphuria hemantha*, doing ten times better with the group than in the stove. It has been already stated in our pages that this plant was probably as hardy as *Pteroma elegans*.

The next call was at the specimen Azalea-house; and the next, at the full-grown specimen of greenhouse plants, ready to be exhibited, and some Heaths and novelties. *Erica Devoniana* was finely in bloom. It is of the tri-color section, or between it and Hartnelli. *Negundo fraxinifolia variegata* is a most excellent thing, and is as showy in front of a shrubbery as any of the variegated Geraniums in the flower-beds. *Weigela amabilis variegata* was also here, and equally conspicuous.

To go into the details of the large exhibition plants, either in this or in the specimen Geranium-house, would be to anticipate the glory of the London Shows. But there is a new exhibition plant, an old *Sempervirens*, I believe, which they call *linearifolia*, and which is done like, but much faster than, the *Kalosantheses*. In one twelve months this makes a bloomer as big as a Pelargonium; the trusses will be ten inches across, and the flowers yellow like most of its kind. The *Acacia longifolia magnifica*, has been rooted here from cuttings—the first English-rooted plants of it I have seen. This, and *Drummondii*, divide the palm of beauty and excellence of the family between them. In an intermediate stove-house were lots of *Clematis lanuginosa*, recently worked; *Crocea stricta* and *saligna*, but more particularly *stricta* grafted on *Correa alba*, a fine spike of *Gesnera zinnabarina*, in bloom; *Tydea Ecknanti*, a most capital crimson and orange Achimenes. This is the best of the Tydeas, or upright Achimenes, bright crimson and orange flower, of the size of a two-shilling piece, veined with well-marked lines of *atro-purpurea*; *Exacum zelandicum*, in bloom, a beautiful blue *Melastomad*.

The next division is the bottom-heat stove, for the grand stove specimens to carry the day in close-contested battles. All the *Ixoras* are luxuriating here, plunged to the rim of the pots in tan; *Allamandas* and *Echites* the same, and not tied in or trained yet; *Medinillas*, *Vincas*, *Stephanotises*, *Clerodendrons*—all in tan, and with the utmost freedom from any restraint by training. They do not begin to train till the bloom-buds are far advanced.

There is a large old plant here, called the purple or blue *Allamanda*, plunged in the tan, and looks exactly like *Echites caryophylloides*, which was introduced to Syon House about the year 1830; but I never heard of it flowering in England. *Echites stellaris* once bloomed, many years back, in the Chiswick Garden.

The last is the retarding house, with a north aspect; and it was then as gay as could be with fine specimen plants in full bloom, with a covering for the stages, between the specimens, of young healthy stock of the same description. The sizes and a few of the kinds must suffice:—*Azalea magnifica plena*, two feet by two feet; *Boronia serrulata*, thirty inches by thirty inches; a standard *Azalea vittata*, the same; *Adenandra speciosa*, two feet by two feet; *Polygala Dalmaisiana*, ditto; *Azalea Benno*, one of the largest flowered; *Erica verna*, thirty inches by thirty inches; *Boronia tetrandia*, the same; *Epacris splendens*, three feet by three feet; *Illicium religiosum*, in fine bloom. This is a hardy evergreen; but to enjoy the flowers so early, it must be had in pots. *Acacia longifolia magnifica*, still in good bloom; *Acacia Drummondii*, four feet by five feet, very fine; *Eriostemons*, many from three to four feet through; several *Epacris*, and others, from two feet to five feet—a fine sight of blooming plants. Out in the pots and cradles, for Lilies, were great quantities of *Tritonia aurea*, which will soon be down to my price after all.

The French spotted Geraniums have the best run here, also; fancies next, forcers and continuous bloomers next; but a certain class of amateurs will buy all the best great Pelargoniums, almost at any price. In the outside, front of a row of houses, was a thick row of the *Belladonna Lily*, and another row of *Anemone Apennina*, both doing remarkably well; the *Anemone* was just going out of blossom, so it is one of our early spring flowers. The yellow-wood *Anemone*, *A. ranunculoides*, blooms at the same time, and both die down, for the summer, at the same time as the *Belladonna*.

FUCHSIAS.—The fashion of having Fuchsias trained up the rafters, pillars, and posts, in show-houses, is adopted here as much as at Kew; and the more distinct kinds, and the strong and rambling growers, are found to tell best. All the following kinds are so used, and found to answer remarkably well:—*Autocrat*, *Clio*, *Countess of Burlington*, *Donna Joaquina*, *England's Glory*, *Etoile du Nord*, *Fairest of the Fair*, *Kitty Tyrrell* (a fine pot plant also), *Princess of Prussia*, *Star of the Night*, *Souvenir de Chiswick*, *Virgo Maria*, and *Wonderful*. Compare these with the kinds mentioned from Kew, last autumn, for the same purpose; and those who have a front border for climbers should plant out these Fuchsias, or some of them, if only to be used as annuals. It is all very well for first-rate gardeners and skilful amateurs, who have the proper conveniences to grow specimen Fuchsias, to surprise visitors; but, depend upon it, there is no way so easy as to plant out vigorous young plants of them; and there is no mode of training by which they look half so well as they do when they have their liberty in a free border.

A house with Fuchsias and Tea-scented Roses, all planted out, and with hanging baskets of gay summer-flowering common plants, but no pot plants, and all the baskets so hung that they would drip only on the borders, would look better than some of our first-rate conservatories.

Among a large lot of Amaryllis, and other bulbs, two opera girls (*Mantisia saltatoria*), were dancing in the

breeze, in full bloom. This easy bulb to grow, is one of the oldest and scarcest in the country, and always a favourite with children.

A thunder-shower in the afternoon prevented a stroll out of doors. D. BEATON.

OUTLINE OF PINE CULTURE—VINES IN PINE-HOUSE—STOVE PLANTS IN PINE-HOUSE.

So little has been said of Pines of late, that a few prominent ideas may be useful to others besides "A CONSTANT READER." I would wish to hint to him, however, that the mere width and length of a house, without the height of the ridge-board and the side walls, and the height of the tank in its centre, do not furnish the means of judging of the fitness of such a house for a definite purpose. I shall consider that all these arrangements are satisfactory. As the four-feet tank is in the centre, I shall suppose that there will be a pathway all round it, and a shelf of from twelve to eighteen inches wide at the two side walls, which would take up the width of eleven feet. For suiting a variety of purposes, and enabling the proprietor and operator to get among and examine their plants in all weathers, there could hardly be a better arrangement. Were such a span-roofed house to be used for Pines alone, and the enclosed space to be made the most of, then I would have divided the tank so as to equalise the heat, covered the space over from side to side, turned the plants into the soil, or plunged the pots in tan; having in either case a layer of rubble over and between the tanks, and the side walls so low outside—say two feet—that there would be little difficulty in examining the plants from the two sides. Under the present supposed arrangement I should also object to plants in their pots standing at once on the slate covering of the tank; and especially in cold weather, as then the roots near the bottom of the pots would be extra dried and heated. The shallower the tank, and the nearer the water was to the slate, the greater the danger would be. If the slate covered a deepish chamber, with the tank at the bottom, the danger would not be so great. To keep such a span-house at from 60° to 65° in a cold, frosty night in winter and spring, the surface of the tank would be too hot for the bottoms of pots to come in direct contact with it. This may be avoided by many simple modes, such as covering the tank with rough pebbles, or elevating the pots on other pots or bricks. Now to the questions.

1. "Will stove plants flourish in such a house?" Undoubtedly. Even if the centre platform is occupied with Pines, there will be the side shelves. Some time ago I described a tank-heated house where Vines, Melons, Cucumbers, stove plants, Ferns, &c., were all at home. The centre could also be used for plants when not filled with Pines. The more tropical the plants selected, the better would the Pines and they agree, as respects temperature.

2. "Could Grapes be grown in the same house?" Some of the best Grapes have been grown in Pine stoves. It requires, however, considerable tact to manage them so as not to interfere injuriously with each other. Except "much variety in little space" is required, it is best to have everything in a different place by itself. The best plan would be, to keep the Pines at one end, and the Vines at the other, and the latter in large pots and boxes, so as to be easily moved in or out of the house. I presume, however, our correspondent refers to Vines planted out in the usual way, and to be trained, at least partly, over the Pines. Some say the Pines are the better for a little shade, and so they are at times; but the Vines shade *continuously* during their whole period of growth; and Vines, unless in extreme cases, never need shading at all: and if, for a particular purpose, you shade for the Pines, you also darken the house for the Vines. Besides, so long as it was considered that Pines could stand un-

injured a comparatively low temperature in winter—say, averaging from 40° to 50° in cold weather, then Vines could be rested in the same house; or if the tops were taken out, they could be gradually excited again as extra heat was gradually given to the Pines; and thus the buds would be regularly swelled and expanded. If the Vines were either kept constantly in a tropical temperature, or brought into it all at once, there would be great danger in the hands of those not greatly experienced of not resting the Vines sufficiently, or getting the Vine-stems to swell their buds very irregularly. In such a house, two Vines on each side, planted near the respective ends, would be quite ample; and each of these might be trained along about where we have supposed the pathways to be, until it met its neighbour in the centre. Each Vine would, therefore, be twelve feet long inside the house. By a moveable piece in the ends of the house, there should be no difficulty in putting the plants in and taking them out of the house. This will secure, so far, a resting and even a thorough ripening of the wood; and protection in severe weather could easily be given by wrapping them up. But, still, if the whole house were kept at a high temperature, there would be a difficulty in gradually exciting the Vines.

A gentleman in similar circumstances got over this difficulty, and supplied himself with a nice pit for bedding plants in winter, and alpins, &c., in summer, in the following manner:—Between his span-roofed house and the walk round it, was a width of three feet as a border. His side walls were two feet and a half in height outside; and every four feet in the middle of that height was a sliding ventilator six inches deep by a foot in length. Instead of Box edging separating the walk and the border, a double row of slabs was placed a foot in height three inches apart, and the space between filled with sawdust. Above the ventilators on the side walls of the house a strong fillet of wood was placed, and on that and the slab wall, wooden covers of a suitable width were placed; and thus a pit was formed, useful for many purposes—so useful, indeed, that in a year or two the slabs were removed, a wall and plate of similar height erected, and long, narrow, glass sashes substituted, instead of the board covers; the covers being still retained to cover the glass, when necessary, in very severe weather. Here bedding plants, &c., are safely kept; and shortly after the Vines have done fruiting, they are brought out of the house and placed along this little pit, to thoroughly harden their wood. The house has a glass division, and the pit has a brick one; so that one end of the house has the Grapes forwarder than the other. When it is desirable to start the Vines in one end gradually, they are moistened with the syringe, and an increase given to the temperature of the pit by opening partly, and regulating, the ventilators in the separating wall. Unless for this purpose these ventilators are seldom opened in winter, except in extreme cases, to keep the plants in the pit safe. In opposition to the dogma that heat always ascends, it is found in practice that the heat gets into these little pits well enough. There is, therefore, no necessity for placing the Vines in the house in a fine day, until the buds have fairly broken; and after that the extra heat will not injure them so much. The Vines trained longitudinally along the house just over the pathways did so well, that the gardener had a third Vine to go under the ridge of the roof; but the last time I heard of them, the question was debated, whether to leave that Vine alone, and get another place for Pines, or remove it; as, since the three Vines were placed longitudinally in a twelve-feet-wide house, the Pines had not done so well, which was attributed to the shade being too much for them, as was keeping the atmosphere rather dry when the Vines were ripening their fruit. Previously, from the position of the Vines the Pines could be syringed, and even the surface of the bed kept moist without much interfering with them. But it was different when there were Vines in the centre

over the Pines as well. If Pines thus, and tropical plants are to be the principal objects, then Vines should be made subordinate to them.

3. "Can Pines be grown with their pots standing on the slate covering of a hot-water tank, and the pots exposed to sun and air?" If the tank is the sole medium for heating the house, I have already hinted that in cold weather the slate would be too hot, and that the pots should stand on something that would permit the heat being diffused beneath them. That Pines can be grown well with the pots exposed to the sun and the air, just like any other tropical plant in a pot in a plant-stove, there can be no doubt whatever. That great success would thus be attended with extra care and trouble there can be just as little question. Most tropical earth-plants flourish best when the pots are plunged in a mild, regular bottom heat. That Pines can be grown otherwise, is not the question so much as how they can be cultivated best with least care, and least likelihood of receiving injury from sudden extremes. Looked at in this practical business point of view, we say—expose but little of the pots of Pine plants; but plunge them, partly at least, in a bed sufficiently heated; or plant at once in earth that can thus be heated. One reason why we should insist on this, in the case of Pines more than for a general or select collection of stove plants, is simply this:—we grow the latter chiefly for the pleasure we derive in looking at their foliage and flowers; but there is little to arrest our attention in the mere look of the former, if the rich and handsome fruit is kept out of view. A mere flowering plant is not so easily injured by extremes and checks as fruiting ones are.

Another reason, or a confirmation of the preceding, is obtained from the nature of the Pine Apple as a monocotyledonous evergreen, and the circumstances under which it naturally flourishes. Let a tropical, herbaceous, semi-herbaceous, or shrubby plant be considerably injured, it can easily be brought round by pruning, &c., provided the roots and main stem are safe. For practical purposes, the Pine Apple plant may be considered one without buds; and therefore, if what are called the leaves are injured, they are injured irreparably. If the whole plant is greatly injured, it is next to beyond hopes of recovery. True, by stumping it in, provided the base of the plant is sound, we may succeed in getting fresh plants or suckers from incipient imperceptible buds; but these will constitute just so many new plants or stems.

Where the Pine plant flourishes naturally, it seldom knows what may be called a period of rest. Its highest average summer temperature will range from 80° to 85°; and its average winter temperature from 70° to 75°. The day temperature will often rise from 10° to 15° and more above the average; and the night temperature will decline nearly as much below it. The temperature even at night will seldom be below from 55° to 65°; but for the most of the season considerably higher. In sunshine, in the dry hot season, the temperature will be very high. Travellers tell us that the plant flourishes best in positions where, though the surface soil is dry, water is found at no great distance below. The plants also have a regular dry, and then a broken, irregular wet season: but in the first the atmosphere is well supplied with vapour, and there are heavy dews at night, which not only cover the foliage, but lodge in the axils of the leaves; some of it trickling down to the roots, and the rest is raised in vapour about the plant during the day. Even in the dry season, therefore, there is a continuance of sturdy growth—the whole plant getting stored with organisable material; and when the wet season with its heat sets in, the extra stimulus starts the fruit, and helps to swell it plumply to perfection. During all these changes from the hot to the cold, and the dry and the wet seasons, the temperature of the soil changes less than even that of the atmosphere. Of course, in a sunny day the soil will not be so hot as the atmosphere; but in a dull day, and at night, it will

be considerably warmer. In some places in the West Indies it has been found that, one foot beneath the surface, it is seldom below from 80° to 85° in summer. The roots of the plant, therefore, never know what it is to have a check, but there is a constant stimulus to growth. These facts, duly considered, have led to the modifying of two practices that at one time were much resorted to—the keeping the plants in a low temperature in winter; and starving them by want of moisture, and roasting them with a high temperature and a dry atmosphere to get them to start into fruit. Both systems injured the plant, and often caused what otherwise would have been a strong fruit-stem to show weak and spindly. Of course, in winter we cannot have the sun heat of the tropics; and therefore, unless for plants ripening their fruit—and even to a certain degree as respects them—it would be folly to give a high temperature when we could give no counter-acting sunlight. But prudence seems to say, Give the plants heat enough to prevent stagnation—from 55° to 65° will be enough for this purpose; and a good rise from sunshine when it can be got. At this time the plants will want less water; but they must have as much as not to suffer. If well grown the previous season, and well exposed to light and air, the gradual increase of 10° rise in temperature, with a suitable amount of moisture at the roots, will encourage fresh, active growth, and bring up the fruit-stem, as a matter of course. To secure this object thoroughly, the less shade the plants have after they are thoroughly rooted the better. Plants with short, stubby leaves, made firm and compact, with full exposure to sunshine, will take much less room, and generally throw better fruit, than those shaded and alternately fed and starved, though the leaves be double the length, and the plants require double the room.

The keeping the roots somewhat uniform, as respects temperature, is a great means of success; and, hence, when I grow Pines again, I shall not, with my present lights, give up the old practice of either planting out where I can supply heat from beneath, or plunge the pots in a bed so heated. Leave the pots exposed as on a stage, and the roots will be liable to more variations of temperature than even the air of the house. Suppose in a cold night, when the frost had come severe after you had gone to bed, and the house, in consequence, had fallen some 10° or 15° more than you deem desirable, if your pots were fully exposed, not merely to sun and air, and thus get extra heated, but to the lowering influence of radiation and evaporation combined, the roots might soon become 5°, or more, colder than the air surrounding the pot. Let such pots or roots be in a bed of heated material, or planted out in heated earth, and the nice temperature at the roots will not only be a means of keeping the plants all right in such sudden extremes, but also, by its slow radiation of heat, prevent the house from sinking so rapidly under such supposed sudden extremes. I, for one, believe that our great, old gardeners, when they grew their Pines in tan beds, knew as much about natural laws and scientific principles as any of the moderns do, who talk so much more about them.

4. Hints of culture. These should be based on the facts alluded to, modified to suit our climate and circumstances, and especially the means of our correspondent. But I find I have already exceeded my space, and must defer these to another opportunity. R. FISH.

CARLEY'S SELF-ACTING FUMIGATOR.

TALK about guns and rifles that would kill the enemy at the end of a distance where the sound of the volley could not be heard by those who escaped, why they are as nothing to killing your enemies by clockwork! This new invention is for killing "the fly" by tobacco smoke driven down their throats by machinery. Nothing more ingenious has been invented since man first carried a watch.

A handsome tin case, in the form of a dial-barometer, and

painted brown and olive, stands before me, on four legs an inch and a half long; then a space to hold a sliding in-and-out drawer, to catch the dust and ashes from the burned tobacco, or tobacco-paper, or the "residue" of any sweet herbs that might be burned for incense. Over the drawer is a circular body with a face in front like that of a barometer or eight-day clock, with seven openings for ventilation, which may be shut or opened by moving a hand one inch. On the back, opposite the face, is a square box containing the moving power, like clockwork. When this is wound up, just like winding up a clock, it sets four fanners in whirling motion, at the rate of so many revolutions in a minute. Over the face and fanners is a nest of open wirework for holding the tobacco; and over that a perforated head to let out the smoke in sixty or more jets. Lids open the face to the fanners, the box to the clockwork, the grate to set the fire, or the spirits of wine, and to fill and regulate the nest; and there is a handle on each side to carry it about. The height of the whole instrument is about two feet, and the depth about six inches. When the nest is charged, the fire is lighted, and the fanners are set in motion. The fumigator may be left to do the rest, as it is a self-acting, or self-blowing bellows and burner in every sense of the word.

I have only about two thousand Geraniums, and I am not much troubled by the fly: but I gave them one dose with the self-acting destroyer, and it was real fun to hear the fanners, to see the volume of smoke, and to watch the insects tumbling heels over head, and nobody near them or near the instrument the whole time.

I have seen the very thing mentioned in the Scriptures, where two women are grinding at the mill, at work in the Highlands. Two millstones, but not so thick or so wide as for a mill, are placed on a cloth, one over the other, and connected with a collar just as in a mill. The upper stone has holes near the side or circumference. One end of the grinding-staff goes into one of the holes; the other end is fastened to something above the stones and grinders. The two women sit opposite each other; and each has a bag of dried grain by her side. Each of them takes hold of the upright stick, and pulls it round and round. The upper millstone is in motion, and each woman supplies the hopper with handfuls of grain. There are "two women grinding at the mill." Now this new fumigator is as superior to the old methods of fumigating houses, except that by Brown's Revolver and Gidney's Furnace, as are the steam mills of the present day to those which were worked by hand in the Highlands during my boyhood, and in the last eighteen hundred years ago.

From my one trial, and still more from the settled opinions of several good gardeners and nurserymen whom I know personally, I have no hesitation whatever in recommending the new self-acting Fumigator to all who can afford to buy it. Any man of practice and average notions might see at once the use and superiority of such a thing as this. I value the gift very much; but I look to the spirit of the thing. I place this invention on the same footing of usefulness as the Waltonian Case.—D. BEATON.

NETTING NOT A PROTECTION FOR FRUIT-BLOSSOMS—ALOE A DESTROYER OF INSECT MARAUDERS.

ANY person that has an Apricot, Peach, or Nectarine tree, does not require to be told, that, in order to obtain a crop of fruit with any degree of certainty, the trees must be protected from spring frosts. But, from the protections which some persons adopt, it is questionable whether the trees derive any benefit. I am alluding to garden mats, fir branches, and, in fact, to any other material that cannot be moved off or on, according to the state of the weather. If these coverings are put on sufficient in thickness to ward off a sharp frost, they, to the same degree, prevent the exhilarating effects of the sun-light and heat from acting on the tender buds and blossoms; consequently, these become weak, and forced into such a state, that four or five degrees of frost will do them more injury than eight or ten degrees would, if they had been developed under an exposure to the full power of the sun.

I once lived at a place in Surrey, where there was an Apricot-wall some ninety yards in length. In the spring, as soon as the buds began to swell, they were covered with fir branches from one end to the other. Thus covered, they remained until the fruit had attained the size of small marbles; and the weather seemed all that could be desired. The branches were then taken off; but a week had not elapsed before the Apricots nearly all

dropped off, pierced by a cold east wind. This is no solitary case: I could enumerate many more.

I do not for a moment dispute that there have been good crops of fruit obtained from trees that have been covered with fir branches; but I must say that I consider it is more owing to good luck than to good management. If it is only necessary to keep the trees covered for a short time—such a spring as this, for instance—the trees will be little the worse, and ripen their fruit well. But, on the other hand, if it is necessary to keep the trees covered for weeks together, as it very often is, the consequences will be that weakening and tenderness which I have instanced in the Apricots. Methinks I hear some readers say, "It is all very well for you to condemn fir branches; but you do not consider the expense of covering walls with strong canvass or calico." Gentle readers, do not be penny-wise and pound-foolish. I have seen more fruit lost in one season, caused by injudicious covering, than would, if sold, have paid for covering the walls twice over, as well as the blacksmith for putting up the covering properly. By properly, I mean so that it might be drawn up, or let down at pleasure, or moved away altogether.

A correspondent at page 404 of the last volume states, that "on the same wall he selected three trees. One he covered with fir boughs, one with bunting, and the third with netting, and that was the only tree of the three that was well covered with fruit." I think your correspondent's friend has come to rather a hasty conclusion in favour of netting. A person that covers a tree with a single or double net to protect it from frost, may as well have a hat made of the same material, and call it waterproof. Or, to use a remark that a man of long experience in the culture of wall fruits made to me the other day, "To cover a tree with a single net, to protect it from frost, is like a soldier in a field of battle getting behind his ramrod to shield himself from the fire of the enemy's artillery."

I will not enumerate the many instances which I have seen of the inefficiency of netting to protect trees from frost; suffice it to say, that I have seen a Peach wall above 100 yards long, one-half of which was covered with strong calico, one part with netting, and one part uncovered. The trees that were covered with calico withstood 14° of frost when in full flower, and scarcely a flower of them was injured; but on those that were covered with netting, and on those that were uncovered, scarcely a flower escaped. Those flowers that did escape were between the wall and the tree; and, after the nets had been taken off, the keenest eye could not detect which had been netted and which had been uncovered, so far as appearance and quantity of fruit went.

I should like to know, in what do three folds of netting differ from fir branches? They each intercept the radiant heat and light of the sun. I think "A. E.'s" friend, and the people at Knowsley, would be quite as successful with their trees if they would hang their nets in a dry garret, or storeroom, until the fruit commenced ripening, when they might be taken down, and hung over the trees. Then, and only then, will the fruit derive any benefit from fishing-nets.

Whatever material we use, let us put it on in such a way that it may be drawn up or let down with as much ease as a window-blind; so that the wall may receive and absorb the heat of the sun through the day, and gradually part with it at night, for the benefit of the trees.

The time is fast approaching when we shall have hosts of green fly, thrips, red spider, and other enemies to vegetation to contend with; but I will not recommend you to adopt the Yankee's effective mode of killing them, which is, first to catch them, then draw their teeth out, then read an account of the Indian mutiny to them, and they will die with fright. But I want you to try our village shoemaker's plan, which is, to mix half an ounce of bitter Aloe with a gallon of warm water, and apply it to the infested plants by means of a fine syringe or watering-can, and, before half an hour elapses, you will have clean plants. He told me that he syringed his Rose trees and Cucumber plants with it last year, and it not only cleared the plants at the time, but there was not one on all the season after; and it does not harm the foliage in the least. I hope the readers of THE COTTAGE GARDENER will try it, and report the result to the Editors.—JAMES REID, *Sudbury, Derby.*

[This suggestion of Aloe as a destroyer of the aphid and other insect marauders is every way deserving of a trial, and with a strong probability of success. If successful, it will be what Mr. Robson truly said, last week, would be a great boon to the Hop grower; for Aloe is a drug so cheap, that the Hop gardens of all England might be washed with a solution of it for a very few

pounds. We say success is probable, because a solution of Aloes is fatal to the common bed bug; and another intense bitter—Gentian—is fatal to the house fly. We recommend all our readers to try the experiment on the green fly, thrips, and red spider, and we shall be obliged by their sending to us the results of their experiments.—EDS.]

A HOTBED IN A GREENHOUSE.

Will you allow me a corner to show how persons like myself, who have a greenhouse, but to whom the preparation of a hotbed out of doors would be very inconvenient, if not impracticable, may obtain that advantage?

Following up the plan which I named in my last communication, I have succeeded in obtaining a hotbed in my greenhouse, in which I can strike cuttings, and raise seedlings, &c., most successfully.

The plan is this:—I place a sheet of iron about the eighth of an inch in thickness, which may be obtained at any iron foundry for about 1s. the square foot. This forms the bottom of my hotbed. Around it I place four pieces of wood, about eighteen inches deep, and knocked together so as to form a kind of box without a lid. This I fill about three-parts full with damp sawdust, and obtain from the glazier a pane of glass to fit exactly the top of the box, which I get him to cut right down the centre, so as to be more manageable. The glass should be tolerably thick—say, about twenty-one ounces to the square foot.

Now for the heating of my apparatus; which is done, as I named in my last, by raising the box with its iron bottom sufficiently high to allow a night lamp to be placed beneath it, filled with pale seal oil, and having a floating wick.

The cutting-pots are wheeled in the damp sawdust almost up to their rims; and the damp and heat combined produce a most genial atmosphere of about 77° to 80°, and which could be raised to 90° by the use of two lamps, or even by trimming them more frequently, and keeping them well supplied with oil.

The boxes can, of course, be of any dimensions; but I find that eighteen inches by twelve are a very convenient size, and will hold at least one dozen three-inch pots.

Verbenas, Lobelias, and Calceolarias, at this time of the year, strike beautifully in it; and though I have not yet tried it, I fully believe that the heat and moisture are quite sufficient to start Gloxinias, Achimenes, and, in fact, everything which needs the heat of a propagating tank.

I have succeeded perfectly both with Balsams and Vegetable Marrows, which have come up in two or three days; and I can fully recommend it as being very clean, very manageable, and very successful, not to say very cheap, and occupying scarcely any room.—A SUBSCRIBER.

RAISING FERNS FROM THEIR SPORES OR SEEDS.

SOME months ago, a correspondent wrote to inquire the cause of the thick green slime forming upon the surface of the soil in which Fern seeds had been sown.

At that time, although constantly in the habit for many years past of raising Ferns from the so-called "seeds," I had never met with the annoyance, and, therefore, could not render him any assistance. But, finding the inquiry was not answered in the next few numbers, I undertook some experiments, to endeavour to solve the mystery; and if now I may not have hit upon the true cause, I am enabled to do that which is not less to the purpose—that is, to explain a method by which, to a certainty, it may be avoided, and with very little extra trouble.

The only condition under which I have found it to occur has been when the soil used has not been fresh; and I believe it to arise from the peat or leaf mould being *very old* and dry. Of the enclosed samples No. 1 was of this description, some very old and dry peat. In about a week or ten days the green began to make its appearance, but not a Fern, except here and there a single one or two. Nos. 2 and 3 are from the same old peat, but which has been highly dried, or almost charred. I take a flower-pot-stand or seed-pan, about six or eight inches across, filled with the soil, and put it into a moderately hot oven, where it is allowed to remain for several hours. It is then taken out and allowed to cool. In this state it is highly repellant of water, and requires to be worked up, or stirred into a paste with

it. I have generally used cold boiled water in the first instance, although I do not know that it is really necessary.

Flower-pots half filled with crocks are recommended for raising Ferns in, but are far less manageable and successful than an ordinary dinner plate covered with a common propagating-glass. Take a six or seven-inch glass and a plate, on the rim of which the glass will stand, and fill the bottom of the plate with sand saturated and made level to the rim with boiled water. On this spread a layer of the soil, and smooth it with a piece of glass, or the blade of a table-knife. It will then be ready for sowing.



The best plan to obtain the spores is to select a frond, or the part of one, as soon as the spore-cases begin to turn brown, to fold it up closely in a half sheet of glazed note paper, taking care to secure all the edges well, and to let it remain for a few days in a warm, sunny place until quite dry, when the spore cases will be found to have burst, and the spores discharged. These seeds, or spores, being so extremely minute, adhere to the surface of the paper and leaves; it is, therefore, better to rub a little of the dried soil on the paper, and work it about well, to get them thoroughly mixed.

As a great many plants may be raised in a small space, a plate of these dimensions will serve for several kinds at the same time; but it is better to keep each one separate. To effect this, and prevent them flying about in sowing, cut a circle of paper a little larger than the surface of the soil. If two kinds only are to be put in, double the paper in halves, and lay it across, so as to leave half the soil uncovered. After the mixed soil and seed have been sprinkled over it from between the finger and thumb, turn down the folded paper over the part sown, and turn up the other for the other half of the soil to receive its quota of seed in the same manner. It is better to mark the division on the edge of the plate in some indelible way, as a scratch or a little oil paint.

If three or four kinds are wanted, fold the paper into three or four, and cut a third or a fourth of the circle out, and use it in the same way, shifting it round to each part in succession, till all are sown; wiping the paper at each move, and marking the divisions on the edge as before.

When room is wanted for more kinds than the plate will hold, I twist three pieces of wire together into a tripod, forming a support for a saucer and a small stand under the same glass. The soil should be kept "glistening" with moisture; and it should be kept in a warm and not-over-dark place. It is quite a mistake to suppose Ferns dislike sunshine: what they object to is its drying influence. When means are taken to counteract this—as under a glass or in a Ward's Case—they will flourish far better in sun-

shine than in a darkish room. With these propagators it is better to subdue the full force of the sun by daubing over one-half the glass with thick paste. And it may here be noticed, that when the plants are well up, they appear like little disks standing on edge, and that the root-fibres spring from the centre of the side away from the light. Now, in this early stage, before the leaves are able to help themselves by turning to the light, it is very important that the upper surfaces should be always kept in the same direction; and if the plate be moved about, it should be so marked that it may be put down again in the same position.

As soon as the plants begin to show the true leaves, it is advisable to transplant them in little tufts into more room; and when they become possessed of three or four leaves they should be planted out singly, and kept in a close frame, shaded with a hamper-lid, or a screen made of "wattles," or fine trellis work. —W. K. BRIDGMAN.

[We shall be greatly obliged by further communications of your experience in Fern culture.—Eds.]

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 40.)

GRAPES.

GROS MAROC (Marocain).—Bunches large, long, and shouldered, and with a long stalk. Berries large and oval. Skin thick, of a deep reddish-purple, and covered with an abundant blue bloom. Flesh tender, sweet, and richly flavoured.

This is an excellent grape, and ripens along with the Black Hamburg. It is frequently confounded with the Gros Damas, from which it is distinguished by its smoother and more deeply-cut leaves, shorter-jointed wood, and earlier ripening.

Grove-End Sweetwater. See *Early White Malvasia*.

Gutedel. See *Royal Muscadine*.

Hampton Court. See *Black Hamburg*.

Horsforth Seedling. See *Morocco*.

ISABELLA.—Bunches large. Berries large and oval. Skin thin, of a dark purple colour, almost black, and covered with bloom. Flesh tender, juicy, sweet, and vinous, with a musky flavour.

This is a variety of *Vitis Labrusca*, a native American grape, cultivated in the open air in the United States, both for the dessert and for wine; but it is not of much account in England.

ISCHIA (Noir Précoce de Gênes; Uva di tri volte).—The bunches and berries of this variety very much resemble those of Black Cluster; but the fruit ripens as early as that of Black July, and is very much superior in flavour to that variety. Berries medium sized, black, very juicy, sweet, and vinous. The vine is very vigorous and luxuriant in its growth, and bears abundantly, if not pruned too close. In Italy it produces three crops in a year by stopping the shoot two or three joints beyond the last bunch just as the flower has fallen and the berries set; new shoots are started from the joints that are left, and also bear fruit, and these being again stopped, a third crop is obtained.

This variety succeeds admirably against a wall in the open air.

Jacob's Traube. See *Black July*.

Joannee. See *St. John's*.

Joannene. See *St. John's*.

Josling's St. Alban's. See *Chasselas Musqué*.

July. See *Black July*.

JULY MUSCAT (Muscat de Juillet).—This is a very early variety, having a distinct Muscat flavour. It was introduced by Mr. Rivers, who describes it as follows:—Berries round, purple; of medium size; rich, juicy, and excellent. This grape will ripen on a wall, as it is one of the earliest of its race, and is well adapted for pot culture in the orchard-house.

KEMPSEY ALICANTE.—Bunches six to eight inches long, not shouldered, and rather thickly set. Berries very large, from an inch to an inch and a quarter long, and three quarters to an inch wide; oval. Skin thick and tough, of a deep blue-black colour at the apex when ripe, but towards the stalk of a greenish-yellow, mottled with dark purple. Flesh greenish, firm, sweet, and with a fine aroma when fully ripe. Seeds generally one or two only, but sometimes four.

The berries, in size and colour, are more like plums. The vine is a free grower, a good bearer, and requires a high temperature to ripen the fruit thoroughly. The foliage when young is very thin and tender, and covered with a delicate down. This is a very late grape, being fully three weeks or a month later than any other variety; still it forces well, and may also be grown in pots. It will hang till May.

Knevett's Black Hamburg. See *Black Hamburg*.

Krach Gutedel. See *Early Chasselas*.

LADY DOWN'S SEEDLING.—Bunches shouldered, eight to ten inches long, and rather loose. Berries above medium size, ten-twelfths of an inch long and nine-twelfths wide; oval. Skin rather thick, tough, and membranous, reddish-purple at first, but becoming quite black when fully coloured, and covered with a delicate bloom. Flesh dull opaline white, firm, sweet, and richly flavoured, with a faint trace of Muscat flavour, but not so much as to include it among Muscats. Seeds generally in pairs.

This is a very valuable grape, and may be ripened with the heat of an ordinary vinery. It forces well, and will hang till the month of March without shrivelling or discoloration of either berries or stalks. The vine is a vigorous grower and an abundant bearer, seldom producing less than three bunches on each shoot. I have seen bunches of this grape ripened in August, hang till March, and preserve all their freshness even at that late season, when the berries were plump and delicious.

Lashmar's Seedling. See *St. John's*.

Lebanon Seedling. See *Catanba*.

LOMBARDY (Flame-coloured Tokay; Red Rhenish; Red Taurida; Wantage).—Bunches very large, shouldered, closely set, and handsome; sometimes weighing from six to seven pounds. Berries large and round, inclining to oval. Skin pale red or flame coloured. Flesh firm, sweet, and well flavoured, but only second-rate.

This requires a high temperature to ripen it. The vine is a very strong grower, and requires a great deal of room; but it is a good bearer. The only recommendation to this variety is the great size of the bunches and beauty of the fruit.

Macready's Early White. See *St. John's*.

MADEIRA MUSCAT.—Bunches of medium size, rather compact. Berries above medium size, round. Skin reddish-purple. Flesh very juicy and rich, with a high musky flavour.

This is an excellent grape, and ripens well in a cool vinery at the same season as the Black Hamburg.

Madeleine. See *Black July*.

Madeleine Blanche de Malingre. See *Early Malingre*.

Madeleine Musqué de Courtiller. See *Early Saumur Muscat*.

Madeleine Noir. See *Black July*.

Malaga. See *Gromier du Cantal*.

Malaga. See *Muscat of Alexandria*.

Malingre. See *Early Malingre*.

(To be continued.)

CHINESE YAM.—The best mode of cooking is *parboilnig* and *baking*—the texture of the flesh becomes uniform, of a pearly and almost snowy whiteness; it is not watery, but soft and very delicate both in appearance and flavour.—(*American Gardener's Monthly*.)

THE BARBAROSSA GRAPE.

This long-keeping variety of the Vine is, as is well known, a very rampant grower; and in too many places it has proved a shy bearer. I saw a method of cultivating it practised by Mr. Mitchell, gardener to Lord Wenlock, at Eserick Park, near York, by which this shyness of producing fruit was entirely overcome. He first grew the Vines in large pots till they were so strong as to warrant an expectation that they would bear some bunches of fruit. They were then pruned back to six or seven feet long, and placed upon a border of rich earth inside the house. The roots found their way through the holes at the bottom of the pots, and swelled off several bunches of fine fruit. There they were allowed to remain, and had the proper treatment of heat, rest, and pruning, and never failed to produce plenty of fruit. I saw them last month, and a finer crop I never saw on any sort of Vine. They had been so placed four years. The bunches were large, the berries well swelled, and as black as jet. Now, the rationale of this practice seems to me to be continuing the roots, and thereby inducing a more moderate growth. The house was principally filled with this variety, and, I understood, was kept a few degrees higher in temperature than would suit the *Black Hamburgh*. In fact, such as is necessary in order to bring to perfection the *Muscat of Alexandria* Grape. At the same place, I saw a good crop of a Black Grape, known by the name of *Lady Downe's*. Like the *Barbarossa*, it is a long-keeping Grape, but the bunches are not large. That objection, however, is obviated by its exceedingly free-bearing quality. I have seen it in other places equally productive. The flavour is peculiar, but pleasant: I consider it much superior to the *West's St. Peter's*, as a late Grape, and very suitable for a small garden. At Eserick, also, there are some rafters covered with *Pope's Hamburgh* Grape, a sort little known, but well worthy of a more extended cultivation. The berries are more oval-shaped than the common *Hamburgh*, the bunches larger, the skin as delicate, and the berries are more juicy and of a better flavour.—T. APPELEY.

THE SCIENCE OF GARDENING.

(Continued from page 24.)

It is by hair-like perforated suckers near their extremities, as we have stated, that roots imbibe food; but the orifices of these suckers are so minute, that they can only admit food in a state of solution. Carbon, reduced to an impalpable powder, being insoluble in water, though offered to the roots of several plants, mingled with that fluid, has never been observed to be absorbed by them; yet it is one of their chief constituents, and is readily absorbed in any combination which renders it fluid.

Roots then must obtain from a soil nourishment to plants in a gaseous or liquid state: we shall have, therefore, to consider what constituents of soil are capable of being presented in such forms. Water can be the only solvent employed; indeed, so essential is this liquid itself, that no plant can exist where it is entirely absent; and, on the other hand, many will exist with their roots in vessels containing nothing but distilled water. Plants with a broad surface of leaves—as Mint, Beans, &c., we have always found increase in carbonaceous matter whilst thus vegetating; but Onions, Hyacinths, &c., with small surfaces of foliage, we, as invariably, have found to decrease in solid matters. The first, at all times, obtain nourishment by decomposing the carbonic acid gas of the atmosphere. The latter do so in a much smaller proportion: hence the reason why the latter are so much more impoverishing crops than the former, inasmuch as that they acquire nearly all their solid matter by means of their roots. These observations explain the conflicting statements of Saussure and Hassenfratz on this point: the former experimented with broad-leaved plants; the latter on such as have small foliage. The first maintained that plants increase in solid content when their roots are supplied with water only; the latter denied the fact.

It has been advanced, that water is the sole food of plants; but all experiments are inconclusive which are presented as supporting the theory.

In the first place, all waters contain earthy, saline, and organic matters. Even distilled water is not pure, as Sir H. Davy has proved; and rain water has been demonstrated to be much less so. No plants, growing in water only, will ever perfect seed; and the facts, that different plants affect different soils, and that

a soil will not bear through a series of years the same crop, whereas it will bear a rotation of different crops, demonstrate that they each take somewhat varying kinds of food from the earth, and not that universal one—water, which is ever present and renewed.

So far, indeed, from water being the sole food of plants, they are injured and destroyed by its superabundance in the soils sustaining them. Such soils are always colder than well-drained soils, inasmuch as that the same quantity of caloric (heat) which will warm the earth 4° , will only warm water 1° —or, to use the language of the chemist, the capacity for heat of water is four times greater than that of the earths.

The effect of drainage upon the temperature of the soil has been well shown by the observations recorded in Mr. H. Stephens' work on the Yester deep-land culture. Six thermometers were placed in the soil, at a depth of eighteen inches. This distance from the surface was chosen, since at that depth they were found not to be sensibly affected by the changes of the temperature of the atmosphere. Observations were made to ascertain the temperature of the ground before and after it was thoroughly drained and subsoil-ploughed. In the following table, column I. gives the month; II., the mean temperature in 1849 of the soil of a field at Yester Mains in its undrained state; III., that of another field in the same year after being thoroughly-drained; IV., that of No. II. in 1850, after thorough draining; V., that of the soil of the south border of a garden at Yester, in 1849:—

VEGETATING SEASON.	II.	III.	IV.	V.
March	36	37	37	42
April	40	38	39	43
May	48	47	42	51
June	54	53	54	58
July	55	54	59	62
August	56	46	54	62
September	50	54	55	59
October	35	37	50	50
Mean of vegetating season	46.75	45.75	48.75	53.37

NON-VEGETATING SEASON.	II.	III.	IV.	V.
November	34	37	44	46
December	34	36	39	41
January	32	32	32	43
February	31	38	36	53
Mean of non-veg. season	33.05	35.75	37.75	45.75
Mean of both seasons	42.33	42.42	45.08	50.83

The celerity with which thorough draining may affect the temperature of the surface soil, was observed, in one instance, at Broadwoodside. A thermometer placed one foot under the surface, on the crown of an eighteen-foot ridge, before a drain was cut, indicated a temperature of 48° ; after a drain had been cut to the ordinary depth on each side, in the open furrow of the ridge, the temperature rose to 49.5° , that is $1\frac{1}{2}^{\circ}$ in six hours.—(*Agricultural Gazette*, 1855, p. 651).

The water removed from cultivated soils by the land-drains has been examined by Professor Way (*Journal Royal Agricultural Society*, vol. xvii., p. 123), and as the substances found in such waters pretty well correspond with those contained in the moisture of the soils through which they percolate, and from which moisture the growing plant obtains at least all its mineral ingredients, it may be useful, as in the following table, to give, I., the substances found in 100 parts of the seed of the Hopton Wheat; II., in its straw and chaff (*Ibid*, vol. vii., p. 631); III. and IV., the matters (given in grains) contained in an imperial gallon of two (previously filtered) drain waters, from two fields on the farm of Mr. Paine, at Farnham, in Surrey (*Ibid*, vol. xvii., p. 133):—

	I.	II.	III.	IV.
Silica	5.63	69.36	0.95	0.45
Phosphoric acid	43.98	5.24	trace.	0.12
Sulphuric acid	0.21	4.45	1.65	5.15
Chlorine	—	—	0.70	1.10
Lime	1.80	6.96	4.85	7.19
Magnesia	11.69	1.45	0.68	2.82
Peroxide of iron	0.29	0.73	—	—
Ditto and alumina	—	—	0.40	0.05
Potash	34.51	11.79	trace.	trace.
Soda	1.87	—	1.0	2.17

Then as to the soluble organic matter, ammonia, and nitric acid, found in land-drainage waters, in seven different specimens, from

the lands of Mr. Paine, there were obtained (grains in imperial gallon) *see post*, p. 54)—

	Soluble organic matter.	Nitric acid.	Ammonia.
1	7.00	7.17	0.018
2	7.40	14.74	0.018
3	12.50	12.72	0.018
4	5.60	1.95	0.012
5	5.70	3.45	0.018
6	5.80	8.05	0.018
7	7.40	11.45	0.066

The ammonia and nitric acid contained in the rain water which supplies this drainage water, varies considerably in different months. That falling at Rothamsted, in Hertfordshire, twenty miles from London, has been examined by Professor Way (*Ibid*, vol. xvii., p. 143). He found (grains) in an imperial gallon in—

	Ammonia.	Acid.		Ammonia.	Acid.
January . . .	0.092 ...	0.017	July . . .	0.061 ...	0.017
February . . .	0.104 ...	0.042	August . . .	0.080 ...	0.060
March . . .	0.086 ...	0.021	September . . .	0.095 ...	0.021
April . . .	0.123 ...	0.035	October . . .	0.061 ...	0.036
May . . .	0.080 ...	0.035	November . . .	0.051 ...	0.018
June . . .	0.135 ...	0.080	December . . .	0.067 ...	0.017

The advantages to the soil of removing the land water, which prevents the free circulation of the atmosphere, is self-evident. "Every acre of ground," adds the Professor, "which allows water to percolate freely, benefits equally by the nitric acid and ammonia of rain. But whence comes the additional luxuriance which vegetation puts on when the land is abundantly worked? whence the Lois Weedon crops? Obviously Mr. Smith cannot be satisfied with the ammonia of rain, he must have some from the air also; and he gets it from the air in a far greater quantity than the rain could furnish. In fact (adds Mr. Hoskyns), he habitually expresses his obligations to the dew, as a more steady benefactor than the rain, in much the same terms as might express the relation of 'daily bread' to an occasional feast.

Liebig calculates (*Ibid*, p. 287) that the soil of an acre twelve inches deep can take up (lbs.) of ammonia, in addition to that contained in it from long exposure to the air—

Thin land of Dorsetshire	20.880
Light red soil, Berkshire	9.420
Stiff white clay	17.040

Secondly. The vegetable decomposing matters in a soil, where water is superabundant, gives out carburetted hydrogen, acetic, gallic and other acids, instead of carbonic acid gas and ammonia—products essential to healthy vegetation. Palliatives are the application of lime, or its carbonate (chalk), to the soils in which these acids have been generated; and, indeed, after those acids have been formed, such an application is essential, though the radical cure and preventive of recurrence—thorough draining—be adopted.—(*Farmer's Almanac*, 1853.)

Thirdly. A soil filled with stagnant water cannot be penetrated by the rain, and this flows off from the surface. "If it be asked," says Mr. Cuthbert Johnson, "What difference is there between rain water and the water in the land which was once rain water too? Why should we covet an abundant supply of the first, and be anxious for the removal of the last?" The chemists of our time have given a ready answer. They have shown, amongst other causes of difference in their value, that rain water contains ammonia, of which land water is commonly destitute. This presence of ammonia in rain water has been placed, as Liebig remarks, beyond all doubt; it may also be detected in snow water. And it is worthy of observation, that the ammonia obtained by the chemical philosopher from these sources possesses an offensive smell of perspiration and animal excrements, a fact which leaves no doubt respecting its origin. And again, Humefeld, and other German chemists, have proved the existence of carbonate and nitrate of ammonia in the water of many springs; in minute quantities it is, most probably, to be found in that of most springs, and this may tend to account for one of the observations of the skillful owners of the water meads of the great English chalk formation. They have remarked that the water of this stratum, as it issues, cold and bright as crystal, from the ground, is much better adapted for their purpose than when, in its course towards the sea, it has gradually acquired an increase of temperature, and a portion of finely-divided and other organic matters. They remark, too, that if the spring water is thus employed for the purpose of irrigation, that after it has passed over one meadow,

it is almost useless to employ it a second time for a similar purpose. "Something is taken out of it by the first Grass," once remarked to me, an excellent owner of one of these great water meadows, "which the second meadow cannot find in it." The same able farmer who had noted these things in the case of the chalk springs of the upper portion of the valley of the Itchen, had also remarked, that the copious waters of that river, although deteriorated for the purposes of irrigation, by their employment in the meads above the city of Winchester, were nearly as valuable as ever after they had passed that city, and been mixed with the contents of its sewers.

It is to the presence of ammonia, then, in such waters, that one source of this effect may be attributed. It is true that the ammonia contained in rain water is in very minute proportions, and in spring water the proportion is, probably, still less; but then it must be remembered, what is not commonly very clearly understood, that the weight of water which annually falls upon the farmer's fields is very great. "If," remarks Liebig (*Organic Chem.*, p. 75), "a pound of rain water contains only one-fourth of a grain of ammonia, then a field of 40,000 square feet must receive annually upwards of 80 lbs. of ammonia, or 65 lbs. of nitrogen (ammonia is composed of nitrogen and hydrogen); for, by the observations of Schubler (made in Germany), about 700,000 lbs. of rain fall over this surface in four months, and, consequently, the annual fall must be 2,500 lbs. This is much more nitrogen than is contained in the form of vegetable albumen and gluten, in 2,650 lbs. of wood, 2,800 lbs. of hay, or twenty tons of Beet-root, which are the yearly produce of such a field; but it is less than the straw, roots, and grain of corn which might grow on the same surface would contain."

It is not an extravagant assertion, that there is scarcely a garden existing that would not be benefited by under-draining. Every gardener knows the absolute necessity for a good drainage under his wall-trees and Vines; but few gardeners ever think, for a moment, whether there is any escape, any outfall for the water he has drained from immediate contact with the roots of the above-named favoured trees. Every garden should have drains cut, varying in depth from two to three feet, according to the depth of the soil, with an interval of from twelve to eighteen feet between the drains. At the bottom of the drains should be placed one-inch pipes: these should be well puddled over, six inches deep, with clay, and then the earth returned. If the subsoil is clayey, the drains should be only twelve feet apart, and the draining tiles covered with stones. They should have an outfall into a ditch, at the least elevated side of the garden. By having the pipes with a bore no larger than an inch, moles cannot creep in, and they are large enough to carry off all the water, after even the heaviest rains.

The expense is, comparatively, nothing, varying from £3 to £5 per acre; and we shall not stop to argue with any one who doubts for an instant the advantage consequent upon removing all water from a soil not retainable by its own absorbent powers; and we will only state one other relative fact—viz., that at Lord Hatherton's residence, Teddesley Hay, in Staffordshire, 467 acres, formerly letting for an average rental of 12s. per acre, were all drained for an outlay of £3 4s. 7d. per acre, and their rental now averages more than 31s. per acre!—J.

(To be continued.)

NEW BOOKS.

THE DICTIONARY OF USEFUL INFORMATION.*—We have been much pleased with the first six parts of this work which are now before us; and if the remaining portion be carried out in the same comprehensive and painstaking manner, it cannot fail, when completed, to be a most valuable volume of reference. It is too frequently the case, that works of this nature are pitchforked together, without care and discrimination, and hence we have been brought to associate worthlessness with cheapness; but, in this instance, the Editors have bestowed as much pains on their labour as if the work were to be sold for three times its actual price. We have examined the first six parts most minutely, and there is no subject on geography, history, biography, mythology, or biblical knowledge, for which we have sought, but what we have succeeded in finding; and on looking over the pages cursorily, we have been surprised to meet with subjects which we should never have dreamed of seeing there. As an evidence of the earnest-

* Dictionary of Universal Information. Edited and compiled by S. O. Beeton, and John Sherer. London: S. O. Beeton.

ness and fidelity with which the Editors are performing their work, we may mention that the information is brought down to the present day; the discoveries of most recent geographical discoverers are recorded; recent and even pending treaties are referred to; and in the biographies of living statesmen we find the subjects referring to events so recent as the fall of the Palmerston administration. Among the biographies we were pleased to find the names of fellow students of our own, still living, who have devoted their time to the study and elucidation of scientific subjects. A feature of the work is, that the pronunciation of every proper name is correctly given. The whole will form, when completed, one volume of about 800 demy octavo pages, and will be furnished with maps, woodcuts, and other useful illustrations.

CHAMBERS'S ENCYCLOPEDIA.*—We never remember to have read a work published by Messrs. Chambers, that was not both useful and ably prepared; and the present book, for general information and reference, is worthy of its predecessors. It is alphabetically arranged, therefore the knowledge required is easily found; illustrations are given wherever required to render the statements easily understood. Moreover, the contents are to be relied upon, and give full and the latest acquired information upon almost every subject in its pages. We wish they had excluded biography and geography, for these require Cyclopedias to themselves. However, as the present work is to extend to seven volumes of about 900 pages each, it will embrace an immense mass of information, and, as the publishers say, "will be the cheapest Encyclopaedia ever published." The following is a specimen of its contents:—

"ABACA, or MANILLA HEMP, is the fibre of a species of plantain or banana (*Musa troglodytarum*), a native of the Philippine Isles, where it is extensively cultivated. The leaf-stalks are split into long stripes, and the fibrous part is then separated from the fleshy pulp. A labourer can in this way produce daily 50 lbs. of hemp. Before 1825, the quantity produced was insignificant; but now it amounts to nearly 3000 tons annually. In Manilla there is a steam rope-work for making ropes of it for naval purposes. They are very durable, but not very flexible.—The fibre of a number of species of *Musa* is used in tropical countries. See PLANTAIN."

THE AMERICAN HOME GARDEN.†—From the thoroughly practical way in which this work is written, we may easily conceive it to be admirably calculated to instruct those for whom it is written; but the details of the operations, in many instances, differ so much from those that are necessary in this country, that it could not be entirely relied upon as a guide to British gardeners. Many of the crops of which it treats are not cultivated in this country; and almost all the fruits, with few exceptions, which are recommended to be grown, do not exist here; and those of them that have been introduced have been found not to succeed in our climate.

But, while we say this much, we would not have it thought that we speak disparagingly of Mr. Watson's book. There is very much in it, treating of the general principles of gardening, that might be read with profit by English gardeners; and it contains, also, many suggestions that they might, with adaptation to our climate, turn to good account.

SALE OF ORCHIDS, FERNS, AND OF FREMONTIA CALIFORNICA.

MR. STEVENS, at his auction rooms, King Street, Covent Garden, sold on the 17th inst. 149 lots of Orchids and Ferns, besides the plant above named, which was thus described in the catalogue—"By order of the Council of the Horticultural Society of London.—*Fremontia Californica*, a new and unique shrub (Torrey in Smithsonian Contributions to Knowledge, vol. v., p. 2), 'Of this most remarkable plant, a solitary individual was raised in 1851, in the garden of the Horticultural Society, from a seed received from Mr. Robert Wrench. In April, 1854, it produced flowers for the first time, as large as those of *Trollius Asiaticus*, brilliant yellow inside, apricot colour outside, with the addition of some cinnamon-coloured down; and their substance was so

thick, that each flower remained in perfection for weeks.'" It sold for £37 16s.

The following are the prices for which some of the Orchids were sold:—*Arides Lindleyi*, £6 10s.; *Arides nobile*, £9; *A. Schröderi*, £31; and another specimen, £27; *Phalaenopsis amabilis*, £12 10s.; *Cymbidium eburneum*, £14; *Arides maculosum major*, £18; *Vanda suavis*, £13 16s.; *Arides Lobbii*, £17 10s.

The highest prices given for the Ferns were:—*Lastrea villosa*, £3 5s.; *Gleichenia speluncea*, "very rare," £3 10s.; *Cyathea arborea*, "very rare," £3; *Gleichenia dichotoma*, £1; *Todea pellucida*, £1; *Diplazium brevisarum*, £1 16s.

The Orchids and Ferns sold, altogether, for about £470.

KEEPING THE AIR MOIST IN STOVES AND GREENHOUSES.

"WHAT is the best way of keeping up a supply of moisture in a plant-stove and a warm greenhouse? Watering the floor with the hand is a troublesome operation, and has a tendency to discolour the flags. In the greenhouse the hot-water pipes are underneath the floor; in the plant-stove they are above it—part of them passing through the bark-bed and under the plant-stage."—J. ROBINSON.

[In the greenhouse, if the pavement is such an object, syringe the stage and shelves; place flats with water on them; place the plants, where convenient, in moss, kept moist in dry, hot weather. If there is no means for getting water into the chamber below the floor where the pipes are, unless in very frosty weather, the watering and syringing the plants will give nearly enough of atmospheric moisture. In the plant-stove, place evaporating troughs on the pipes exposed, and syringe the surface of the bark-bed as it gets dry in hot, dry weather. Pour water also about the pipes in the bark-bed, when you judge the tan is dried by them. If you use an atmosphere near saturation point, you will want some scrubbing and scouring to keep your flags nice and clean. Soda and salt will assist you in cleaning them; but they will soon wear the stones out.]

VARIETIES.

WHAT IS A FACT?—It is necessary always to distinguish fact from opinion, and not be guided by an opinion as long as any doubt is in the mind whether the facts upon which it was founded were sufficient. In illustration of this, "You must know," says Professor Owen, "that some of us scientific working men in London formed a kind of club; and after our winter's scientific work, lectures, &c., are over, we usually go to enjoy a day's fishing and fresh air. We have taken a small river in the neighbourhood of London to enjoy the sport of fishing. There is a public-house near it where we can obtain homely and cleanly fare, like that which old Isaac Walton described in his beautiful book on angling; and our rule is that he who catches the biggest fish takes the chair and presides for the occasion. Well, on one occasion, in the course of the day, one of us, I should not exactly say he was a scientific man—he was a political one—caught a trout about three pounds and a half weight; and took a barbel, which he had caught at the early part of the day, weighing about half a pound, and thrust it down the trout's mouth with the end of his rod. He then handed over the fish to be weighed, and it scored four pounds. Of course he took the chair. As we were going away, another of us, a scientific man, indeed a President of the Royal Society, said to the chairman—'If you don't want that fine fish, I should be glad to take it home.' The fish was given to him; and about a week after we met again. My lord said, 'Do you know there was a most extraordinary circumstance about that great fish which you gave me the other week? I had no idea that trout were so voracious.' Knowing I am very fond of natural history, my servant came and asked me to go down into the kitchen; and on going there I saw that the trout had swallowed a barbel of fully half a pound weight. Of course the naturalist could not avoid saying, when he heard this, 'I am astonished to hear your lordship state such a circumstance as that you know that trout are not voracious—it is out of all probability for a trout to have a barbel weighing half a pound in its stomach, and the idea most unphilosophical.' My lord said he did not care whether it were philosophical or not, but it was a matter of fact. In the end an explanation took place, and it turned out

* Chambers's Encyclopædia. A Dictionary of Useful Knowledge for the People. Illustrated by wood engraving and maps. W. and R. Chambers, London and Edinburgh.

† The American Home Garden, being Principles and Rules for the Culture of Vegetables, Fruits, Flowers, and Shrubbery. By Alexander Watson. Illustrated. London: Sampson Low & Co.

they were both right and both wrong. The fact was true; but the hypothesis that the trout had swallowed the barbel was not true—*that was an opinion.*" In conclusion, Professor Owen said he had mentioned this anecdote to illustrate the importance of distinguishing between fact and opinion, and of looking very carefully to see that the assertions were true before they formed their opinions upon them. If they did that, it would be of very great advantage to them; and this was the best advice he could offer them.—(PROFESSOR OWEN at *Leeds Mechanics' Institution.*)

TUTUILA.—This is one of the Navigator's Islands in the Western Pacific. It was visited during the summer of 1849 by Captain Erskine, in Her Majesty's ship "Havannah," and the following are extracts from his published "Journal:"—

"In the afternoon I landed, with several of the officers, at the head of the harbour; and, in company with Mr. Gibbons, Maunga, and five or six of his people, walked over to Fanga-saa, or Sacred Bay, situated on the north side of the island, adjoining Massacre Bay, where the unfortunate affray took place in 1787 between the natives and the boats' crew of M. de Langle, which resulted in his death and that of eleven of his companions. The walk, which occupies little more than an hour, is by a tolerable foot-path over a steep hill; the height of the pass being, as estimated by Captain Bethune, 625 feet, and through a dense forest interspersed with Cocoa-nut trees. We stopped once or twice to breathe and drink the milk of the Cocoa-nuts, which the chief's attendants procured for us; climbing the trees, by looping their feet together to keep them from slipping, with great ease and quickness, and tearing off the thick husk with their teeth in a manner which would dislocate the jaw of an European. The cool milk is very refreshing; and the pulp, if the nuts are not too old, agreeable and wholesome. Our friends ate it with avidity; but we were told they were indebted to our presence for the treat, the Cocoa-nuts at this season of the year being 'saa,' or tabued, and may, except when required for the use of chiefs, or strangers, travelling, be used only for making oil; this article being, in fact, the single one of commercial value which they produce. Our approach to the village of Fanga-saa (a short description of which may, from the general similarity, serve for all in Samoa), was indicated by the provision grounds, fenced with low walls of broken coral, in which, interspersed with Bread-fruit trees, were growing Bananas, Yams, Taro, and the Ava Pepper (*Piper myrsiniticum*). A neatly-kept path led into the village, situated under the shade of a Cocoa-nut grove (the infallible signs of habitation among the islands), and only a few yards distant from the sea; on the borders of which were seen a few covered sheds for their larger canoes, the smaller ones being hauled up on the beach. The houses stand at irregular distances, and in no formal order; the path, or street, being, however, cleanly swept, as in the open space (or malai) in front of the large house (or fala-tele), which is common to all the inhabitants when meeting either for business or amusement, and is also the residence of casual strangers. This house, although of large dimensions, is of similar construction to all the others, forming an oblong with elliptical ends of about fifty feet long by twenty broad. Three posts, of from twenty to thirty feet high, support the ridge pole, which, with the surrounding line of posts of five feet high, form as it were the skeleton of the structure. The roof, which is constructed separately from the rest of the building, is composed of three parts—the centre, and the two ends; the rafters of the former being parallel to each other, and those of the ends curved, and resembling an immense cabriolet hood. The effect of the latter is very singular and pleasing; and they, being of considerable length, are made of separate pieces of the wood of the Bread-fruit tree, joined together by an ingenious scarf or joint. These portions of the roof, which are well thatched with the leaf of the Sugar-cane, being elevated on the frame above mentioned, are securely lashed with cord made of Cocoa-nut fibre, first to the lower row of posts, and then to each other, no nails, or pegs, of any description made use of; thus leaving the whole house open to the height of five feet from the ground. Mats, suspended from the lower part of the roof, may, however, be let down when required; and the floor, which is raised some feet above the level of the surrounding ground, and paved with pebbles like many of our summer-houses, is covered with soft mats for sitting or reclining. Two wood fires are generally kept burning between the central posts; and the large ava-bowl made from the Tamanu (*Calophyllum inophyllum*), occupies a conspicuous place. All cooking, however, is performed outside of the house, in the hot stone oven common to Polynesia; consisting merely of a hole in the ground a foot or two in depth, in which the food, either

animal or vegetable, after having been cleaned and wrapped in Banana-leaves, is covered up for a time (varying from one to four hours), with stones previously heated, the earth being filled in and piled up in a mound to prevent the escape of the steam. When a stranger of consequence enters a house, a new or clean mat is almost always offered for his seat, and an air of freshness and cleanliness pervades the whole mansion."

"My having come among them in a friendly way being announced, and ended with an exhortation to behave to shipwrecked strangers in future in a Christianlike manner, the ava-bowl was ordered to be prepared. The younger part of the audience, who, men and women, were seated in an outer circle outside of the roof of the house, immediately started off, and returned in a few minutes with a few plants of the Ava Pepper. The root of this having been cut into short pieces and scraped, the lads, previously rinsing their mouths with water, proceeded to chew it; delivering the pulp when sufficiently masticated to the maker, who had carefully washed his hands, and seen that the large wooden bowl, standing on legs and highly polished on the inside, was perfectly clean. When enough had been chewed, which was the case in about ten minutes, clean water was poured in from Cocoa-nut shells till the bowl was nearly full, and the whole was then mixed. A cloth, or strainer, made of the leafy fibre of some tree, was then handed to him, and the liquor filtered through it by taking it up as if by a sponge, and squeezing it back into the bowl. This operation having been performed two or three times, the maker tossed the straining-cloth away from him, and proclaimed, in a loud voice, 'The ava is ready,' an announcement followed by the whole party clapping their hands. Two men were then selected, one to call out, in the proper order of precedence, the names of those to whom the cup was to be offered, and the other to act the part of cupbearer. The duty of the former was performed in a loud singing tone, ending off with the person's name in a flourish; and the cup, or Cocoa-nut shell, which, from long use and the effects of the Ava, was highly polished on the inside, and had an agreeable smell, was handed round with much form and ceremony. The officers and myself having declined our share, the first was presented to Maunga, who, I remarked, called out to fill the cup up to the brim. Mr. Gibbons was next called, but begged to be excused; and the inferior chiefs and talking-men were then served, until the whole was finished. The cupbearer performed his office with much grace, holding the cup at first as high as his head, and quietly lowering and depositing it at the feet of the person to whom it was destined. I may remark, that in all meetings it is considered highly indecorous to sit with outstretched legs, the proper position being that of a tailor on his shop-board; and it would be an insult to pass anything over the legs, or feet, of a chief. These points of ceremony are, however, dispensed with in the case of Europeans; although the people always seemed pleased with our attempts, sometimes awkward enough, to conform to their customs. I regretted for this reason that I had excused myself from tasting the Ava, particularly as its preparation is not so disgusting as the accounts of some travellers had led me to expect."

"It is much to be regretted that these people have, as yet, no stimulus to steady industry, there being few opportunities for the purchase of goods to improve their condition. The means of exchange they might soon acquire by the manufacture of Cocoa-nut oil, which could be produced to a great extent. The process at present is of the simplest kind, being merely the scooping out the kernel of the nuts by hand, and leaving the oil to drip through the bottom of an old canoe, perforated with holes, into any vessel prepared to receive it. We saw on the beach one or two iron tanks, which the missionaries had procured for this purpose; and we were informed that their congregations had contributed eleven tons of oil to the Society this year, the value of which they estimated at £40 a ton in London. Cotton and Arrowroot might also be produced as articles of export, and any description of tropical vegetables grown in sufficient abundance to subsist a large population. They have no cattle in this island; but pigs are plentiful, although they seem not to be used as daily articles of food, but only at feasts and on great occasions. We were told of an instance when 1,700 pigs were killed at once, to celebrate the opening of a chapel in one of the districts; but this profusion is very properly discouraged by the missionaries. They have also poultry; but the principal articles of food are Bread-fruit, Taro, and Bananas (all of which were sold alongside), and Yams in the season. Maunga sent me off a dish, prepared in the native hot-stone oven, of Taro-top, filled with a creamy preparation of the Cocoa-nut, called palu-sami, which we afterwards met with

occasionally at the missionaries' tables. When hot, it was not unpalatable, and is, probably, the same as the 'fine puddings' which Mr. Hamilton says they brought off to the 'Pandora.' The Ihi, or Tahitian Chestnut, growing on a large tree, with deep buttresses, is also often eaten; and sweet Oranges have been lately introduced from other islands. They thrive very well, but are as yet confined to the missionaries' gardens; and Limes and Citrons are plentiful."

WHAT WILL A GLASS OF WATER HOLD?—It is generally thought that when a vessel is full of water, any solid substance immersed in it will cause it to overflow, and such will be the case if the substance is not soluble in the water; but the philosophic truth, that in dissolving a body you do not increase the volume of the solvent, may be proved by a simple and interesting experiment. Saturate a certain quantity of water, at a moderate heat, with three ounces of sugar; and when it will no longer receive that, there is room in it for two ounces of salt of tartar, and after that for an ounce and a dram of green vitriol, nearly six drams of nitre, the same quantity of sal ammoniac or smelling salts, two drams and a scruple of alum, and a dram and a half of borax—when all these are dissolved in it, it will not have increased in volume.—(*Scientific American*.)

KINO.—Two thousand trees of the Kino tree (*Pterocarpus Marsupium*), were seen along the roads through the Wynad notched, for the extraction of Kino, which is taken to the coast, where it meets with a ready market, and is exported in wooden boxes to Bombay.—(*Dr. Cleghorn*).

TO CORRESPONDENTS.

BULBS IN POTS (L. E.).—The leaf is that of a Narcissus; but the drawing is of some Fritillaria, and that of the small bulb with spreading, narrow leaves, looks like an Allium,—probably the *Allium Cuspidatum*. But bulbs are so much of a family likeness, that they cannot be made out by leaves or drawings; and in nine cases out of ten, there is not a man alive who can tell the name without the bulb is in flower before him. The bulbs of the Crimea are few, as far as they have been described, and there is nothing among them that is at all rare or scarce, or very handsome. They are not at all difficult to grow; but it would be much easier to grow them in the open border, in front of a house or wall. Any common, light garden soil would do for them. The pot culture of bulbs, in general, is not well understood in Britain, and there is not a book worth reading on the subject. As your bulbs are in good health, there is no fear that they will not soon flower. Since they were brought from the Crimea, in October, 1856, they had only two growths; and no introduced bulbs from the wilds could recover much sooner. We have a bulb in high cultivation since 1848, without flowering yet; and we never could flower an African bulb under five years, if it did not bloom the first year after potting. We have seen bulbs from the Crimea in bloom, in London, six months after they were dug up; but then an officer in the army, who understands their culture, lifted them. The small Iris from the Crimea is one of the varieties of *Iris pumila*. There are two more very pretty kinds of *pumila* in the south-east of the Crimea, and the Alliums, Ornithogalums, Asphodels, Galanthuses, and Narcissian bulbs of that region, are quite as hardy as these early Irises.

PROPAGATING VIOLETS (A Subscriber—R. R.).—Violets will do either by dividing one or two-year old plants in "bunches," or by runners like Strawberries. We prefer the latter mode.

WEIGELA ROSEA (Norice).—The frost would not harm your *Weigela rosea*. It is a hardy shrub for the borders. It blooms on the young wood; and you prevented it doing so when you pruned away the last year's wood. At a little distance the plant in flower looks like some Crab—say *Pyrus spectabilis*; but, of course, the nature is very different. Plant it out next May, and it will be in bloom this time next year, or nearly so, if you have the right plant, which seems doubtful.

CUCUMBER LEAVES TURNING BROWN (A True Friend of the "C. G.").—If you have not the plants scorched in a bright sunny day, after some dull days, without giving air time enough, we should expect your plants have some Cucumber disease; and for getting rid of it, we should recommend more air; a lower temperature—say, 60° at night, 75° bottom heat, and as much of the old soil picked out as possible, and fresh sandy loam added.

VARIOUS (Rose).—When your *Jasminum revolutum* in the house has finished blooming, cut it in freely, and thin it as you wish. If done early, the young shoots will probably bloom again in summer and autumn. *Azalea Indica* prune back when done flowering; but old plants do not like much severe cutting. Place the plants in a close heat to encourage growth, then get that growth hardened and ripened by exposure to sun and air, and the plants will bloom next season. Without fresh growth and ripening they will not do so. *Roses* may yet be layered, but it would have been better done in autumn. We have had no experience of the *Spergula pilifera*.

PROPAGATING-HOUSE OR PIT (G. A. H.).—We would gladly assist you, but do not think we can add anything to what has appeared, of late, on the subject. A flue would do, but a hot-water pipe would do better. A house would be better than a pit, because you could get inside of it. We would combine the two, by sinking the house a little below the ground level. Our having a lean-to or a span-roof would depend on whether we could place one house against a wall already built for us. If not, then we would have two side and end walls about three feet nine inches in height, half below the ground level, and have a span-roof some seven feet or more to the ridge roof fixed. House ten feet wide, with path in the centre, and platform on each side. Bottom heat supplied by tank or pipes. Say the house was twenty-four feet long, a small retort boiler would heat it admirably, and about 100 feet of three-inch pipe would secure enough of top and bottom heat. A flue going round the house would be the cheapest.

GARDEN PLAN (T. H.—, Reigate).—In your flower garden 3 is wrongly placed, or 4 is not the right colour. The colours and the style of growth must be the same in these two; else you have a pig with one ear, or like having one sleeve yellow and the other sleeve white. When you dress up a geometric garden, just think on your own boots, stockings, and the rest of the garments. A white vest will do with a brown coat and plush tights; but if you counter colour the parts that should be the same matches, you make a complete Merryandrew of the dress. 2 and 5 are capital; 6, 7, and 8 very well; 9 and 13 Merryandrew again. Let 9 be in herbaceous plants. 10, 11, and 12 middling. 12 should be changed to a distinct-coloured Verbena. All the rest not amiss. The Grapes had too great a dose of the sulphur. The rust on the berries will follow them to the table and spoil their looks; but the flesh and flavour may be good. Never attempt again to get up steam from hot pipes as long as there is any nasty composition on them.

ERRATA.—At p. 34, "This Rose grew with tolerable strength, but bore no flowers when the house was glazed in March." Put a full stop after "flowers," and then read—"When the house was glazed in March, I budded it," &c., striking out the full stop after "March." Also, "The length and sides of the cover" should have been "length and size." "Diffuse the heat equally" should have been "equably."

NAMES OF PLANTS (Clanthus).—Your plant is the *Arabis alpina*, or the Alpine Wall-press, but most times called by the name *White Arabis*. The accent in *Dielytra* is on the y, which is pronounced like i. (*C. H.*).—Your Ferns are, 1. *Asplenium trichomanes*, the common Spleenwort; 2. *Asplenium adnigrum*, the black Spleenwort. We cannot tell what plants the leaves 3 and 4 were taken from. Send us specimens of them when in flower, saying what you know about them yourself. Such information is often useful.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

MAY 11th and 12th. SKIPTON (Yorkshire). Sec., Thomas Robinson.

MAY 25th and 26th. BEVERLEY. Sec., Francis Calvert, Surgeon, &c. Entries close May 2nd.

JUNE 1st, 2nd, and 3rd, 1859. BATH AND WEST OF ENGLAND. At Barnstaple, Devon. Director, S. Pitman, Esq., Rumwell Lodge, Taunton. Entries close May 1st.

JUNE 6th, 7th, and 8th, 1859. GLASGOW. Sec., Robert M'Cowan, 17, Gordon Street, Glasgow.

JULY 1st, 2nd, 4th, and 5th. SHEFFIELD. Wilson Overend, Chairman. Entries close the 15th of June.

OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. Sec., Geo. Griffiths, 7, St. Swithin Street, Worcester.

N.B.—Secretaries will oblige us by sending early copies of their lists.

SITTING HENS.

As we are anxious to give all possible information to our readers, we must expose ourselves to the acensation from some of telling them that which they know as well as we do, in order that we may enlighten others who stand in need of it. Those who do not intend to exhibit at early Shows, very wisely avoid the trouble of early chickens. Many breeds—such as Spanish, Polands, and Hamburgs—produce better birds in May than any other month; and, we need scarcely say, the chickens are then much easier to rear, as it is a natural time. From experience, we have no objection to June chickens, and we always hatch as long as hens are broody. The London market is only supplied by people who hatch all the year round. As queries we have received prove to us that there are yet some who, in spite of books and THE COTTAGE GARDENER, are in doubt as to the proper course for sitting and rearing, we will give a few plain directions.

You may now put hens on thirteen, or even fifteen eggs. Unless the hen is very large, the former number is sufficient. The nest should be on the ground—this is most important. It should be made of a good sod of grass, cut thick and laid on the ground. This should be covered with a little soft straw, and the eggs placed on it. Before you risk the sitting, be sure the hen is really broody. This may be done by allowing her one or two worthless eggs for a day or two. A broody hen will sometimes sit for a time sufficient to turn the eggs, then desert for eight or ten hours, and then sit steadily. None of these eggs will hatch. There should be food and water within reach of the sitting hen; and dust in which she may roll herself in the short time she allows herself to leave her nest. This thorough dusting prevents her from being tormented by vermin, and enables her to sit closely, and in comfort on her eggs. As it is unlikely she will go on wet grass, and by wetting her breast moisten the eggs as much as it is necessary, it will be essential, during the last ten or twelve days, to sprinkle them daily. They do not want to be soured in water; but while the hen is off, they should be sprinkled, by the hand being dipped in cold water, and then wrung, or shaken, over them, till it is saturated on each egg. It is the neglect of this precaution that causes the numerous complaints we have of eggs not hatching, although there are chickens in them all. The egg is burned up

with drought; and the inner membrane becomes so dry, the chickens cannot make their way out. There is a very natural explanation of it. If a hen steal her nest, she leaves at break of day, while the grass is wet with dew, and seeks her food. When she returns to it, her breast is dripping with water, and in this state she sits on her eggs. She hatches all, or nearly all.

If by accident a hen break an egg in her nest, remove it and cleanse the others, or they will adhere to the feathers of the hen. Recollect, the more comfortable the hen is, the better she will sit; and *that* has to do with the strength of the produce.

It is hardly necessary to say the chicken in the egg is susceptible of cold, as it dies from desertion or exposure. If, then, a hen, from vermin or other cause, sits hollow, the chickens suffer from lack of warmth; and when the time comes for hatching they die in the shell, or only partly extricate themselves; and when hatched are so weak, they are hardly worth keeping.

When a hen has hatched four or five out of thirteen eggs, take them away; and, having filled a deep, narrow basket with soft hay, put the newly-hatched chickens in some flannel, and place them near a fire, in-doors, according to temperature. Remove the empty shells. When all are hatched, clean the nest, and place all the chickens under her. The hen will attend to them for some hours afterwards. We should have said, at the beginning, that a hen should sit in a quiet place, where she will not be disturbed by others that are not in the same predicament.

COMING EVENTS.

THE note of preparation is sounding; and, while the east wind is whistling—or, as a Yorkshire friend poetically calls it, “pinging”—in our ears, we hear of ice half-an-inch thick; we also have indications that the Summer Shows are on the alert. *Apropos* de pinging, we recollect the same term is often used by the graphic correspondents from the seats of war when they describe the sounds of the minié rifle balls. The warlike Swedish king declared, when he first heard the cannon-balls, they should ever after be his music. We confess that, although our acquaintance is confined to the east wind, our liking for it is so small, that, with the conviction we should not love the musical missiles, we love the east wind quite as little.

Sheridan's old friend always laid in bed so long as the wind was in this quarter. We do not altogether agree with him; but we confess, that during its prevalence, we lie in bed later than at any other time. We also make the inquiry, when a tap at the door announces seven o'clock and the hot water, “Where is the wind?” “East, and very cold.” “Very well. Put down the water.” “Ah!” says duty, “you ought to get up. What a bad example you set your children and servants! See what you read of the ancients, they were all early risers.” “Nonsense!” say the pillows and bed-coverings, “they all lived in the east and warm climates.” “But,” says duty, “it will be just as cold in an hour's time.” Like Mrs. Vicar of Wakefield, you make up in violence what you want in argument; and, rolling yourself up in the clothes, you loudly declare you don't care, and *will* have ten minutes more. “Ah!” says duty, “you hypocrite, you know you mean an hour.” Ping! goes the east wind round the corner of the house; you simulate a shudder, and close your eyes.

If there is a happy moment in the twenty-four hours, it is the snatched sleep when you ought to be shaving. Well, we dozed off, and were speedily in a balmy climate where the air was redolent with perfume from the orange groves in which we were walking. We did not lose our hobby, and were admiring the birds, when another tap at the door dispelled our happiness. “Well, what is it now?” said we in a querulous tone. “The letter-bag, sir.” “Put it down,” shouted we in a tone of thunder. “Hot water getting cold, sir.” “Very well.” “Half-past seven, sir.” “I know it,” we growled, and jumped out of bed. We always look out of the window directly we get up. The dust was curling down the road; the gardener was at work with his coat on; the cows were in a sheltered corner with their tails to the wind; the lilacs, that were green three weeks ago, looked as if they were growing wetted tea-leaves; and there was not a chicken in sight. We huddled on some clothes, and opened the letter-bag. Letter from an advertising tailor, announcing “the *spring* fashions.” One from a man “asking an order for an American ice-safe, in which meat will keep in the hottest weather.” The next reminding us that “the return of spring invites to out-door pursuits;” and, after quoting Crammer on the “godly practice of archery,” offering bows, quivers, arrows, targets, gloves, &c., at the lowest

possible prices. Next, “that it is impossible not to admire the perfect provisions of Nature; that the inclement season being past, she puts on the gay garb of spring; that she decks herself with flowers; that the birds (Ah! though we, this is in our line) no longer flock together, but pair, and warble in their delight. The streams are again peopled with the finny tribes, leaving their deep, dark winter recesses; that man rejoices with the inferior works of creation, and, doffing the heavy garb of winter, identifies himself with the gladness of Nature. That, anxious in all things to meet the requirements of their customers, Messrs. Moses and Sons —” “Drat the post,” said we, and threw away the bag, while we applied ourselves to brush and razor.

We often detect ourselves talking to our readers on paper. Well, then, did you ever rise in a thorough ill-temper? Many of the old sayings are quaint and truthful.—Did you ever get out of bed the wrong way? Was there ever a moment, or a day, when there wanted only the match applied to the train, and the lack of a shirt button has caused the explosion—when everything had a jaundiced look, as though seen through yellow spectacles? We came down in just such a humour; but a cheerful fire and a new-laid egg having somewhat restored us, we called for the bag, and thought we would finish our post. Essex Agricultural Society, open to all England, at Colchester, in June; Bath and West of England, at Barnstaple, in June; Sheffield, July 1st. We will show at all of them. It is decidedly our opinion, Shows should be encouraged; and we always find it more than a holiday—it is a treat when we go to an agricultural meeting. We then began to muse on the birds we would send; then on the many pleasant days we had passed through the poultry pursuit; on the friendships it had formed; on the triumphs we had achieved. We gloried in the past, and anticipated the future; and with our feet on the fender, were in a fair way to revisit the orange-groves whence we had been so ruthlessly expelled in our bed-room, when the crow of a privileged cock, who had the *entrée* to our breakfast-room window, recalled us to matter-of-fact things and life. Throwing the crumbs to our favourite, we adjourned to the yard, and will relate our results hereafter.

SMALL DRONES.

I DO not think it necessary to remark upon Mr. Wighton's paper at page 11 of your present volume. As he does not condescend to give us ignorant people the benefit of his alleged discoveries in apian science, for fear we should fail to understand his scientific language, we must, perforce, hold our peace. At the same time let him not construe our silence into acquiescence in his statements. Such “light of nature” as we happen to possess, is sufficient to enable us to guard ourselves from falling into his errors—for *errors* I honestly believe them to be. My object in now writing is to remark upon certain observations scattered over your eighteenth volume, touching small drone bees. I was surprised to find them spoken of as uncommon; whereas, I have rarely failed to see them in any spring in many, if not all, of my hives. They were generally the first drones to appear. If your apian friends will only watch their hives narrowly this spring, at times when drones fly abroad, I think they will not find them very rare. I am here quite of opinion with Mr. Wighton—that they are bred in worker cells, if not in those cells which will be seen in most hives on the border-land between the drone and worker cells; where may often be seen a kind of transition cell neither one nor the other.—B. & W.

OUR LETTER BOX.

DISEASED SPANISH FOWLS.—“I have a fine Spanish cock, which is somewhat affected with a strange-looking appearance in the throat close to the swallow. It looks like small yellow maggots, about the sixteenth of an inch in length. I cut some away on Saturday or yesterday; and they appear still to affect his usually bright red comb with a scaly appearance. He feeds well; but it appears very slightly to affect his crow. I have a hen also, which is rather queer. She has something growing on the jaw, which seems to eat into her. Will you favour me with some advice?” —W. G.

[We do not suppose they are maggots. If they are, remove them. It is probably caused by heat of the stomach. Purge freely with a tablespoonful of castor oil every third day till the bird is relieved. We are strengthened in our opinion by the appearance on the comb. It is the precursor of white comb, and Spanish are subject to it. The cure is purging, and to rub the parts affected with compound sulphur ointment. You must adopt the same treatment with the hen; and if the growth on the jaw have the appearance of a fungus, remove it with a knife. We consider both to arise from the same cause—probably induced by over-feeding; and purging will, we have no doubt, effect a cure.]

WEEKLY CALENDAR.

Day of Month	Day of Week.	MAY 3—9, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon R. and S.	Moon's Age.	Clock after Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
3	Tu	<i>Sempervivum cruentum.</i>	29.625—29.450	55—26	E.	—	31 af 4	23 af 7	54 a. 8	1	3 14	123
4	W	<i>Sparaxis.</i>	29.876—29.805	57—27	N.	—	29 4	24 7	17 10	2	3 21	124
5	Th	<i>Sparmannia Africana.</i>	30.041—29.983	66—28	N.E.	.02	27 4	26 7	28 11	3	3 26	125
6	F	<i>Sphenostoma gracilis.</i>	30.290—30.250	61—25	N.E.	—	25 4	28 7	morn.	4	3 31	126
7	S	<i>Sprengelia incarnata.</i>	30.357—30.312	60—25	E.	—	24 4	29 7	22 0	5	3 36	127
8	SUN	2 SUNDAY AFTER EASTER.	30.316—30.235	59—29	E.	—	22 4	31 7	58 0	6	3 40	128
9	M	<i>Stenochilus maculatus.</i>	30.130—30.068	62—38	E.	—	20 4	32 1	24 1	7	3 44	129

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 61.5° and 40.0°, respectively. The greatest heat, 81°, occurred on the 4th, in 1830; and the lowest cold, 20°, on the 4th, in 1853. During the period 116 days were fine, and on 96 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

ATTEND in due time to all plants that require potting into larger pots; and pinch off the tops of all that are of a rambling or loose habit of growth, to make them compact and bushy.

AZALEAS.—As soon as they are out of bloom, take them into heat to make their growth, syringing them frequently and supplying them occasionally with manure water, and shade for a short time in the middle of the day when the sun is powerful.

CALCEOLARIAS.—Give them weak liquid manure occasionally, and shade those in bloom.

CINERARIAS.—When done flowering, cut the stems down, to favour the development of suckers, and remove them to a cold pit or frame.

CLIMBERS.—Keep all neatly trained.

HEATHS and NEW HOLLAND PLANTS.—The late-flowering sorts, or such as have already flowered, and the young stock intended for another season, may be removed to cold pits or frames. Such plants as require it must be shifted, stopped, and shaded; particular attention being paid that they do not get dry at the root.

PELARGONIUMS.—Shade such as are in flower; and shift and stop such as are wanted to flower late.

STOVE AND ORCHID-HOUSE.

Keep up a kind humidity and a gradual increase of temperature in correspondence with the increase of solar light, and shut up early in the afternoon with sun heat. Continue to propagate the choice stove plants, and keep all free from insects.

ACHIMENES.—Pot off.

BEGONIAS.—Continue to repot as they go out of bloom, pruning in any straggling shoots, and propagate as advised last week. Keep them close, and syringe frequently, when they will soon commence growing. Keep them some distance apart, to allow their fine foliage to expand. The following are good sorts:—*Prestoniensis*, *Cinnabarina*, *Fuchsoides*, *Martiana*, *Zebrina*, *Barkeri*, *Rubra*, and *Argyrostigma*.

GLOXINIAS.—Repot where necessary.

SUCCULENTS.—*Opuntias*, *Melocacti*, and *Epiphyllum*, to be excited into vigorous growth by intense light and abundance of heat and moisture.

FORCING-HOUSE.

CHERRIES.—Temperature 65° to 70° by day and 50° at night, and give plenty of air; but guard against wet and cold.

FIGS.—Stop and thin the shoots. Keep a damp atmosphere, and use the syringe over the foliage, when the house, or pit, is shut up in the afternoon, to keep down red spider. When the fruit is ripening, the syringe must be dispensed with, and the atmosphere kept drier; but, as there is generally a succession of fruit on the trees, water must not be wholly withheld at the time of the

first crop ripening, as it would endanger the succeeding one; but it may be given more sparingly.

MELONS.—Stop and keep the shoots very thin. When the crop is safely set, give the soil a good soaking of clear, tepid manure water. Let swelling fruit be exposed as much as possible to the light.

PEACHES.—Continue to stop all gross shoots, which will both increase the size of the fruit and the smaller shoots at the bottom of the tree. The syringe, when used frequently, is useful for the same purpose, and to keep down insects. Air and light to be admitted, to give flavour and colouring to the ripening fruit.

PINES.—The fruiting plants now swelling, and in pots, may be treated with a little clear liquid manure. Guano water, or soot water, or both combined, will produce a perceptible improvement in foliage and growth, with the caution that it be given in a warm, clear state, and not too strong. Ply the syringe freely on warm afternoons, and close up with a temperature of 85° or 90°; giving air again towards evening. When indications of ripening by changing colour appear, desist from the use of the syringe, and give them no further supplies at the root.

STRAWBERRIES.—When ripening their fruit they may be placed in a frame where a free admission of air can be given.

VINES.—Encourage the young stock intended for growing in pots next year, to make healthy, luxuriant growth, by giving them plenty of pot room and manure water, to set them in a light situation in some of the forcing-houses and to pay early attention to the leaders as they advance in growth. Where Muscats are growing with Hamburgs and other such free-setting varieties, it is advisable to keep up a brisk day-temperature for the Muscats during their season of blooming, and until their berries are fairly set, with a reduction to a night-temperature of 65° or 68°, to suit the other varieties.

WILLIAM KEANE.

BEDDING OUT AND TRANSPLANTING—LIQUID MANURE FOR BEDS—GARDEN JOURNAL.

IN my own private garden, which is a different thing altogether from the Experimental, I remove all the spring flowers as soon as they have done blooming, to get the ground in readiness for the summer crop; and that crop consists chiefly of seedlings of one thing or another to be proved, and some rare botanical fancies which need to be constantly under the eye of the "governor." I would not remove one-half of these plants if I could help myself; but having been compelled, by gifts and kindness, to grow more things than I absolutely wanted; and now, having had a practical knowledge of five or six years of what can be done under restraint, provided it is done well, I can come into competition in difficulties of that kind with any reader of THE COTTAGE GARDENER in the three kingdoms. The only chance I have over many of them is, that I can do the moving myself as well as there is any occasion for, and that I can see in a moment if a plant is right, or wrong, or

middling. There are hundreds of gardeners who have had as much practice as I have, but there are very few gardeners indeed of that class who have had one-tenth of the experience I obtained in pinching for room: therefore, one cannot be far wrong in saying that nine-tenths of our best gardeners are not aware to this day of what may be done with spring flowers, and the extent to which they may be indulged without the least harm or obstruction to the bedding plants.

When the bedding-out system was taken up, twenty years back, on scientific principles, as one might say, but in reality on the plan of fashionable colouring, as ladies choose their dresses and make their fal-dals in worsted work, some of us were in the very thick of it; and, to fill up a gap in the winter, the leader of that crew adopted and recommended as a makeshift to stick the beds with boughs of evergreens, for which he was handsomely taken to task at the time. The practice took, however; and, like all cheap movements, it soon righted itself, and evergreens—not mere boughs—were soon made use of; and no one now thinks of having bare beds all the winter if he or she can evergreen them that way. Even the expense of having suitable evergreens in pots ready to put in is now done away with; for no pots are needed that way. The plants soon take to the system of removing twice in one year—first, to decorate for the winter; and next, to make room for bedders, which brings us to the present time.

Spring flowers are now sufficiently proved to be just as safe to move twice a year as the evergreens under the same circumstances. No pots are needed for the one more than for the other. Spring bulbs, more particularly, are much safer out of pots when we come to lift them. Not one of the thousands of Tulips which spring-decorate the beds at the Crystal Palace, or the Hyacinth either, is ever put in pots; and they are safely removed long before they have finished their growth. But in private gardens I now believe—indeed, I am quite sure—that the surest way is to remove all spring bulbs as soon as they are out of bloom, to transplant them carefully elsewhere, and to give them a good soaking of water; then to mulch the ground between them, and to see they do not suffer by want of water through the rest of their growing season.

Bulbs of all border sorts may also be so arranged in ribbon borders as not to require lifting but once in three or four years—that is, to have them planted in straight rows, so as that bedding plants can be planted just behind or in advance of them. The principal ribbon border at the Experimental is so arranged; and we find it very convenient in more ways than one. Early in the spring, when the bulbs are breaking ground, you can go to such a border and lift a patch of Hyacinths, or Tulips, or Narcissi, or bulbous Iris, or, indeed, of any kind of bulb; and if the kind is well established it will lift, and pot, and force for the conservatory, just as well as if it had been potted in the October previous. When the same bulbs, or others of the same heights, come out, after flowering in-doors, the bulbs being reduced and half broken, they are ready to fill up the gaps again as if nothing had happened. By that system, it is surprising how many kinds of bulbs may be had in one row, or one border, and never seem to be in the way or out of place.

There is a prejudice about Tulips and Hyacinths, many people believing it essential for them to be taken up and dried every summer; but there is not the slightest reason for doing so oftener than once in three years, if so often. They are more safe from accident, in the ground, if people would mind they are there, and not disturb them at the time of bedding out, or when the bedders are lifted, or cleared from the border. The place may be smoothed, or raked, over in the autumn; and when the leaves are fairly above ground in the spring is the right time to fork these borders. Never use a spado among bulbs,—a steel fork is the right tool,

and will loosen the ground as deep as is good for the plants, present or to come. Rotten dung, fresh earth, and liquid manure, are the requisites to keep a border in good heart; and the end of March is the best time to apply them, to strengthen the bulbs, and be ready for the summer crop.

When a crop of anything is in rows, whether they are bedders, or for the pot or table, liquid manure of any strength may be applied in the centre between the rows with less risk, or danger, than in any other way. I have often, with my own hands, poured down large quantities of the very strongest liquid manure between rows of plants, one drop of which would be destruction to any one of them, if it touched the leaves or roots; but filtering to the roots through a few inches of soil all harm is avoided, which goes to show that a fair porous surface of earth is the best and safest fixer of ammonia, and all over-strong matter in the liquid. Every one of my own bulbs, from Crocus to Hesperantha, gets it every spring, from a place which one would shudder at the idea of, and I never lose a leaf. I quite agree with clarifying liquid manure for pot culture, and in the hands of those who do not know, practically, what a plant can digest, or what the strength of their liquid is. But to keep a bed, or border, in good heart for a whole season, at the least possible expense, have no recourse to clarifying the goodness out of the stuff, but give it to the plants fresh from the stable, cow-house, or piggery, or where it may be got much stronger, and one good soaking of it will last the whole of that season; the spring is the right time to apply it. Then, in June, if a handful of mould from below the surface is as good as a smelling-bottle, you may depend upon a good show of Roses, and most bedding plants, if the beds wanted any assistance that way. The old florists who placed four or five inches thick of strong dung at the very bottom of their beds, and two feet below their plants, were much wiser in their generation than those of us who supply rotten dung on or near the surface. Mr. Rivers has been recommending, for a long time, one or two thorough good soakings of the richest liquid manure to the Rose-beds in the winter; and if Roses are ever to come out healthy on a thin, poor, sandy soil, that is just what will do it. When flower-beds and borders get exhausted, by cropping, this strong liquid is very much better for them than rotten dung, and now is the time to apply it.

Apart from bulbs, the rest of the spring flowers are easy enough to transplant out of the beds to make room for bedders; the older they get the more easy the transplanting. Like the evergreens for winter use, they will soon get so accustomed to this way of changing, and will make their best roots so much nearer the surface, and so much more closely together, that, without the change, they would soon actually get out of a vigorous condition altogether. At all events, such is the way that the evergreens for wintering beds turn out, after a few years of a succession of changes between the beds and the reserve ground. In the midst of the frost and dry easterly winds, early in Passion-week, I removed almost my whole collection of hardy and half-hardy bulbs; not for bedding purposes, however, but to have a better arrangement of sorts, and to allow me to alter and amend the border for them. They came dropping in one after another, and they had to be planted anyhow. But if the kind readers of THE COTTAGE GARDENER go on supplying me in the same ratio for a few more years, my border, without a change, would be the best example in the country of too much of a good thing being almost as bad as none at all. From that one trial, and from knowing it to be a fact that several of the kinds of these bulbs had never been removed before by anyone, when in the midst of their growth; and from another, and the best fact of all, the change to rain on Easter Sunday, and the warm days which succeeded, all my

bulbs are now just as safe and look quite as well as if they had not been moved. Therefore, from all these things put together, and from what has been done at the Experimental Garden at the other end of the yarn—that is, in the autumn planting for spring flowers—I am fully convinced, and quite ready to argue, that there is not a single plant worth growing for spring flowers which may not be transplanted into the beds or borders as late as the beginning of January, and on, according to the earliness of the kind of plant, from the first week in January to the last week in February; giving you from October to the new year to alter and amend your flower-beds and flower-borders—to make them richer, or poorer, or alter their size and shape, or do with them and to them whatever the fashion of the times may render necessary. Then, no matter what old people like me may do after this, when the young generation are all married and have gardens of their own, let it be a law in their “establishments,” after the first or second year, that whatever needs to be done in the flower-garden way ought to be set about late in the autumn, and to be finished by Christmas, in order to get in the spring flowers; and, as soon as it is convenient, to remove the spring flowers after they have done blooming; to have that done very carefully, and not to put it off till bedding-out time, when the hurry, and watering, and shading, and every spare moment, should be given to the new bedded plants. It is by putting off the clearance of the spring crop to the last day that people lose so many of their spring plants; or if they do not lose them, the plants are so crippled for want of proper attendance after transplanting, or the necessary care and attention in the transplanting itself, that they will not pay for another shift to the beds for a year or two.

Those who go to work systematically, and will have done things in the best and cheapest way, will have rough plans of their gardens done on a large scale the first or second year; every bed will be numbered on the plan, and every border the same. Then, after a while, or as soon as they have got over the difficulties of arranging the colours, the heights, and the style of growth of the bedding plants, they will fix on the next season's way of planting in August and September each year; and when the arrangement for the planting next year is settled, and marked in the book, nothing is more easy than to calculate to a nicety the number of plants of each kind that will be required, or the whole number to plant Trentham or Shrubland Park. Then knowing the actual wants, all they have to do is to provide so many more plants against accidents and failures—so many per cent.

Another thing of great use, is to have an alphabetical list of all bedding plants in the garden book, whether they are used in the place or not. A garden without “a book,” is only haphazard, and a very expensive and troublesome way of doing business. Going to sea without a compass is only half as bad as doing gardening without a garden book; as, if the worst come to the worst, the one can only end in drowning, but the other may be burnt alive, or scorched, or parched, or come short of some things, or have too much, or too many, of things not half so good; then the bother, the expense of doing and undoing, the vexation of spirit at being talked of as so and so, or having nothing, as it were, to show for so much outlay. Were it only that life is sweet, one in this state might envy the crew without the compass, who managed to get out of all this trouble so easily. A regular book of system will prevent confusion, trouble, bad temper, excuse for neglect, unnecessary expense, and many of the reflections which are classed under the head of “who would have thought it?” All those who belong to an art or a profession for which an almanac is printed, might get up a very useful garden book, by first reducing the almanac to single sheets, or divisions, or pages, and to get the bookbinder to work in the garden book, or clean paper for the garden book, and for memo-

randa in the almanac, and to bind the whole into one book. As far as the days, and weeks, and months go, “Moore's Almanac” is as good as any other for this purpose. Now, or rather when the system of gardening by book is in full vigour, you will find that the arrangement for the spring flowers will be made on purpose to suit the bedding system; such and such a number is to be planted with this or that plant next year—that is, next summer: what will do best in spring to come off just at the proper time, to suit “this and that,” or what will remove the easiest if left till such and such are ready to bed out. These and similar questions will be the order of answers to correspondents then.

D. BEATON.

LOOKING AROUND US.

AZALEAS.

If it is desired to keep those swelling their buds as late as possible, the plants should be placed in an airy, shady place, and kept moist and cool. A low calico-covered house would be very useful for such a purpose; as, when constant decoration is required, much will depend upon the power of retarding, as well as accelerating. Some of the finest Azaleas I ever saw in May and June had been placed in such a calico-covered place by the middle of April, and, in fine seasons, by the middle of March. To keep plants now in bloom as long in flower as possible, they should be placed in a shady part of the greenhouse, or the roof opposite them be shaded in bright sunshine. Such directions involve grouping plants in a house, however small. Most amateurs scatter their blooming plants all over the house, to give it altogether a gay appearance. They would be able to do more justice to the plants if those growing and those blooming were placed in different groups. Azaleas done blooming that had been slightly forced, keep moist with the syringe, and give but little air until they have grown freely. These should stand by themselves, so that the foliage may be sprinkled frequently without hurting things in bloom. Even Pelargoniums fully exposed to sunlight should have no moisture on the foliage when the rays of the sun reach them. The Azaleas in this condition would be better in a forcing-house, shaded a little, for a month or six weeks; but they will do very well in the greenhouse, treated as above. Before being encouraged to make this growth, all the flowers and seed-stalks should be cleared away, and any straggling shoots cut back. The Azaleas do not like to be cut back into wood several years old.

CAMELLIAS

Will be the better for shade, moisture, and extra heat after they have done blooming. If moist heat can be given them, they may be cut as freely as a Laurel. It is bad policy to cut the tops and repot at the same time. The best time to repot them and Azaleas is when fresh growth is taking place freely after blooming. After that repotting extra shade will be necessary, until the roots are working freely in the new soil. If both sorts of plants that are of good size, and in largish pots, have the surface soil picked out, and are fresh surfaced, and supplied with weak manure water from cowdung, or other manure of a cool nature, the plants will thrive admirably for several years in the same pots. When Azaleas are young, sandy fibry heath soil suits them best. As they get older and larger, an addition of a little dried cowdung two or three years old, in small nodules, and pieces of sweet fibry loam, and some nodules of charcoal, will be enjoyed by them. The loam will cause them to grow more stubby and compact. Heath soil and good fibry loam will suit Camellias when young. Sweet, brown, fibry loam should be the chief compost as the plants get large, lightened with dried cowdung, silver sand, and some bits of charcoal.

HERBACEOUS CALCEOLARIA.

April and May are the chief months for these; and much of their beauty will depend on the pots being full of roots by the beginning of April, and the pots standing on a cool medium—such as damp moss, and never knowing what it is to want water. After April and May, a house well shaded, or rather one with a northern aspect, and with plenty of ventilation, and room between the plants, will keep them longest in bloom. The foliage may be frequently sprinkled in the afternoon; but the leaves should be dry before the sun's rays beat on them, or they will run the risk of exhibiting nature or sun-printing. The sprinkling and the cool airings will help to keep insects at a distance. If green fly appears, smoke with shag tobacco, doing it when the leaves of the plant are dry, and taking care that the smoke is cool, however the tobacco is used. The great advantage of a regular fumigator to an amateur is, that however rapidly he turns the handle of his instrument, the smoke is poured on the plant cool, and he can apply the smoke just where the insects congregate. We generally use a garden-pot with a hole in its side, to blow the fuel if necessary. A piece of lighted cinder is placed in the bottom, a bit of paper on that, and then the tobacco, dry at first and wetted above, and then a good thickness of damp moss as a covering, through which the smoke comes cool. For want of the moss, we have had plants, and chiefly their tender leaves, injured, especially when a large house was to be smoked. All amateurs who wish to study economy should have a little close box of some kind, where they may place their insect-infested plants, and smoke them there. A pinch of tobacco would then be enough. When to smoke a house, half a pound might be necessary. The plants may also stay in the box for a day or two, and even get a second smoking if deemed advisable; and it will be sure to be advisable and necessary, if the plants have been at all dirty before they were taken there, as there will be fresh generations to come from eggs after the old fat flies have been destroyed. This is not all: you will escape the annoyance of having lady visitors suspecting that you, at times, turn your greenhouse into a convivial smoking-room. It is impossible that they can see much beauty in your flowers, or know anything at all about their fragrance, when they rush out as fast as they can, after being nearly as much punished as the fly with the stink of tobacco. The odour of the weed will hang about such a smoked house for days. If there are ladies who love such tobacco fragrance, why let them enjoy it by all means, and, consequently, dispense with a smoking-box; but I must own that one of the things that do surprise me in these go-a-head days is to see an elegant lady, walking with, and clinging to the arm of, a gentleman, who feels the honour just so much, that he must turn his mouth into a tobacco-smoke chimney. Had I the government, which, by courtesy at least, we allow the ladies to have, I would take a lesson from Lord Palmerston, and, in such circumstances, cause all such gentlemen-chimnies to consume their own smoke.

Badinage aside, there is something as respects the comfort of plant-houses; and economy also, in having a small place, to be used as a plant-hospital. If that place were large enough to permit a person to sit in it comfortably, it might be used as a smoking-box both by the man and his plants. A heavy smoker told me several times, that he only thoroughly enjoyed a pipe when the place was so small and close that it could be densely filled with smoke; then the most wonderful and glorious ideas flitted through his brain. Of course, like the Chinaman with his opium, he paid for such exultation with subsequent depressions. Now, what a fine place for collecting all the insect-covered plants! The tobacco would thus rid the plants of enemies, if it injured the smoker; and, at least, he would have the satisfaction of pleasing himself in his own way, without annoying his neighbours or friends. The smoking-box might, therefore, be just

large enough for the double purpose. I have a small one for plants, with the roof of glass. On the road from Exeter to Exmouth we noticed, last autumn, a large barrel stuck up on its end in a meadow. The upper end had evidently been knocked out, and to give more head room, a high peaked roof was placed over the barrel. On inquiry as to the object of such a singular structure, the coachman informed us, that at a neighbouring mansion the ladies did not like the scent of tobacco. A servant lived with them who was very fond of it, and this barrel-room in the meadow was erected that he might enjoy himself without giving them any annoyance. Of course, a door was cut out on one side, and I presume there were the necessary conveniences within. We had so much banter about the barrel, that my friend declared I should be putting it in *THE COTTAGE GARDENER*. I had forgotten all about it until the Calceolarias and their insects brought it into mind; and I may just add, that, among other ideas, that barrel furnished me with three as rules of action. 1st. The importance of being charitable and tolerant to the eccentricities and peculiarities of others. 2nd. The importance of so indulging in any peculiar tastes of our own, as not to prove an annoyance to those who have no sympathy with such tastes. 3rd. The ease with which a small smoking-box for plants might be formed, and thus the houses, in general, kept sweet, even though not so large as to do for a smoking-parlour for the owner, or the gardener. Such a barrel as that referred to, with part of the roof of thick glass, would make a nice plant-hospital.

If seeds of such Calceolarias are desired, the best flowers should be hybridised; without artificial fertilisation the best kinds will be apt to refuse to seed.

R. FISH.

BROCCOLI.

Few things continue longer in season than Broccoli; for, like the Potato, this vegetable, with its near relative the Cauliflower, may be had almost any day in the year. In mild winters it is generally to be had; but in very severe ones, unless there is space to accommodate a quantity in some way free from frost, the onward progress of the plant is either wholly stopped, or so much retarded, as to be unable to furnish that succession of good, useful heads which is much wanted and sought after. As we are all anxious to maintain a succession, it is prudent at all times to plant the kinds likely to secure that, not forgetting a good proportion of those most capable of withstanding a hard winter. As some definite information is better than mere general terms, I will endeavour to give the young beginner a few hints as to the management of this important family, which, like all the members of the Cabbage tribe, are linked together in a way calculated to produce hybrids, or monsters, wherever they are left to produce seed in close neighbourhood to each other; but, as this is more especially the seedsman's business, the remarks here made will be confined to the varieties known to be good and true.

As before stated, the Cauliflower is closely allied to this family, and its services are generally prolonged from June to December; while, very often, it is in great abundance early in May. Successions of sowing, from the earliest hotbed-sowing in February to the end of June, will carry on the succession to as late a period in the year as frost will generally allow their use. Sowing in the early part of September will also produce the plants to stand the winter under protection, as has been described in these pages. Cauliflower is not necessarily the only vegetable of its kind for the summer. The Broccoli most nearly related to it—the *Cape*—is by some preferred to Cauliflower, and is sown and planted instead; while the hardier kind of *Cape Broccoli*—the Pink or Purple variety—will stand more frost than the White, and ought to be planted in moderate quantity to come into use in December, or even later, if the weather be mild. In fact, in sheltered places in the south of England, where severe frosts are not expected, a large proportion of *Cape* ought to be planted, as it is often most useful. But, supposing the winter to be severe, recourse must be had to other and hardier kinds; which brings us on to the third class, of which the *Walcheren* may be regarded as the type. This useful variety and its fellows—*Snow's Winter*,

and others—are useful intermediate kinds, and often come in when there would otherwise be a blank. In character it is more of the Broccoli than the *Cape*; the leaves undulating, tend to conceal and preserve the head better than the more plain and upright foliage of the *Cauliflower* and *Cape Broccoli* tribes. It is, however, not so hardy as those kinds, which are more especially grown as *Hardy Winter Broccoli*, of which there are many varieties differing widely from each other. *Knight's Protecting* being a tolerably hardy white sort, but some pink or purple kinds are still more so; while the hardiest of all is, undoubtedly, the *Sprouting*. Assuming, however, that a few of each of these are planted to meet the demand of a hard winter, we now come to the early spring class, which follows hard upon those last mentioned; only the spring ones are generally white, or cream-coloured; and their growth being somewhat rapid at last, they are more esteemed than those having to struggle on to maturity amidst the colds of winter. *Chappell's Cream*, ostensibly said to be winter Broccoli, often delays its coming into use until early spring, and may here be set down as a type of the class it represents.

We now come to the large, late spring Broccoli, of which such fine specimens are every year exhibited in Covent Garden and other markets. The plants producing these are generally tall and bare of leaves, except at the top. There are many varieties having local appellations, but the *Southampton*, or *Portsmouth*, may serve to convey an idea of what is meant. These are, unquestionably, the finest class of Broccoli we have; for, the eatable part being all called into existence within a week or ten days of the time of cutting, it is tender, delicate, and more free from that rank smell after boiling which the winter kinds have. An acquisition to this class would be a very late one—one that would continue the season a week or so later than any now grown. This would bring us to the early Cauliflower, which, nevertheless, is often done.

A small, hardy, dwarf variety is often grown, and comes into use in the early part of May, called *Miller's Dwarf*, or the *Dwarf Russian*. This is more hardy than the kinds mentioned above; but it comes into use all at one time—the whole breadth planted coming into use in less than a week very often. It may, however, be planted closer than the other kinds, and likewise much later in the season. This is an important matter where ground is under crop the preceding season. A few may, therefore, with advantage, be grown; but it is not prudent to depend on this kind alone for the whole spring crop.

Another kind, which is the latest kind I have, formerly was called *Bowles' Late Broccoli*; but that name is not now in the seed lists, and the variety has passed into another one. It is dwarf, and more full of leaves than the large *Portsmouth* varieties, and in colour is more of a sulphur than a white. It is very hardy and useful. A few ought to be in every collection.

I have now passed in review the various kinds forming the garden Broccoli of the present day—not the latest-introduced varieties, certainly; but, as these are merely improvements, or said to be improvements on the originals, the distinctions given will be sufficiently understood. Nevertheless, it may be proper here to repeat them in the order described:—

- Class 1. *Cauliflower Broccoli*, early and late.
- „ 2. *Cape Broccoli*, in variety.
- „ 3. *Walcheren*, and other half-hardy winter kinds.
- „ 4. Hardy winter. A miscellaneous group, differing widely in character. *Knight's Protecting* and *Sprouting* being, perhaps, as useful as any.
- „ 5. Early spring; *Chappell's Cream* and others.
- „ 6. Late spring; the large *Portsmouth* varieties.
- „ 7. Late dwarf; *Russian*, or *Miller's*.
- „ 8. Very late; *Bowles'*, or *Wilcox's* Broccoli.

The above list seems formidable enough; but one, or two kinds at most, of each class are sufficient. As no one is certain what sort of a winter there may be, it is prudent not to depend on one kind alone. Were I desired to do so, I should prefer the *Walcheren*; but that is not advisable. Adverse seasons will upset the best calculations, and a long blank is the result. The cultivator must, therefore, depend on a collection for a supply, rather than trust all to one or two kinds of high standing. But some little management in the way of sowing is necessary to ensure that regularity in succession so much wished for.

The first three classes may be sown at intervals up to the end of June; but it is common not to sow the second and third before the middle or end of May, as Cauliflowers will serve the summer and the early autumn. The end of June is, however, as

late as it is prudent to sow any of these kinds. Classes 4 and 8 may be sown as early in the spring as convenient; and 5, 6, and 7, may be sown the middle of April. One sowing of all these later classes ought to do for small gardens. The situation, it is almost needless to say, ought to be an open one; and the ground being good, the seed need not be sown too thick. Sprinkling the bed, after sowing, with wood ashes makes the seeds distasteful to birds and other enemies, and is also an excellent manure; but late in the season the seedlings are quickly up.

Like all the tribe to which this family belongs, the Broccoli relishes a good soil, well enriched with manure; for it is a gross feeder. An open situation is also indispensable, when a good article is expected. Nevertheless, it will struggle on against difficulties; and, with plenty of manure, very good heads are often grown under fruit trees where the latter are not too thick. It is also not unusual to plant Broccoli between rows of other growing crops—as Potatoes, and more especially Peas; taking care, while collecting those crops, not to injure the young Broccoli plants, and to remove them as soon as possible. In fact, the Broccoli is so accommodating, that it will suit itself to most situations where a liberal use of dung has been made for it; but where really fine heads are wanted, such as we often see gracing the stall of some grower at market, the plants must have plenty of room—not less than two feet and a half each way—and the ground deep, rich, and loamy. These conditions ensure a vigorous growth; and often a mild winter furnishes extraordinarily large heads. But it will often be found that plants more stunted in their growth, and from a soil less nutritious, will survive a hard winter better; for, as has often been explained in these pages, a luxuriant growth is incompatible with a hardy fibrous tissue; therefore, do not despise the more stunted plants, for they have their good points.—J. ROBSON.

ENTOMOLOGICAL SOCIETY'S MEETING.

THE April meeting of the Entomological Society, held on the 4th instaut, was rather barren in communications, although fully attended—the Society vying in this respect with any of the scientific societies of the metropolis. The chair was occupied by the President, Dr. J. E. Gray, F.R.S.

Amongst the works presented to the library since the last meeting were the publications of the Geneva and Belgian Academies; an interesting Memoir on the digestive organs of the scale insects (*Coccidæ*), which are such pests to the horticulturist, by Mr. J. Lubbock; an extensive Memoir on the longicorn Beetles of old Calabar in tropical western Africa, by M. Cheviolat, of Paris; and various periodical works.

Mr. Stevens exhibited some of the more remarkable and interesting species contained in a fresh importation received from Mr. Wallace, who has taken up his abode for a time at Dorey, in New Guinea, from whence it is expected that many valuable collections will be received. Amongst the specimens brought before the Society was a beautiful new genus of Buprestideous Beetles; some magnificent species of Curculioidæ; several most remarkable species of two-winged flies, with horns on the heads of the males resembling notched antlers, and, in one case, even simulating the long slender antennæ of an Ichneumon; a strange orthopterous insect was also sent, having the mouth placed low down on the breast, and the top of the head produced into a long cone, with the antennæ dilated at the tips.

Mr. Ianson exhibited a series of minute Beetles, belonging to different families, taken near London, and which had not previously been recorded as natives of this country.

Mr. G. R. Waterhouse also exhibited several new species belonging to the same order. There is nothing like a little rivalry to induce persons to work to the utmost extent of their powers.

Mr. W. W. Saunders exhibited a large species of Centipede found alive in a chest of tea from China. Mr. Smith also mentioned the occurrence of the same obnoxious creature in a sugar cask. The former gentleman also exhibited specimens of the singular crustaceous insect *Branchipus stagnalis*, taken in the water in ruts near Reigate. This species is interesting as being the largest British species of the Entomostracæ; and its repeated occurrence in situations which in the summer are dried up is a curious instance of the power of the eggs in resisting desiccation. He also called attention to the extraordinary development, along the south and south-western parts of the country, of the globular galls formed on the young Oaks by *Cynips quercus petioli*, and suggested their employment in the manufacture of ink; which

had, indeed, already been accomplished, although analysis had proved that the amount of tannin which these galls contain is much less than that contained in the ink-galls of commerce.

Mr. Westwood exhibited some of the portable cases formed by the larvae of the little Moth *Coleophora gryppipennella*, and which infest Roses both in greenhouses and in the open air at this season.

Mr. White read the description of one of the new species of Beetles received from New Guinea from Mr. Wallace, to which he applied the name of *Demochroa carinata*. It belongs to the splendid family Buprestidae, of which we have scarcely any representatives in this country—the most brilliant being inhabitants of the tropics.

THE SCIENCE OF GARDENING.

(Continued from page 54.)

To plants in pots, good drainage is not less essential than to those in our borders.

To secure this, not only should at least two inches of broken potsherds and rubbly charcoal be placed beneath the soil put into pots, but the soil itself should be allowed to retain its pebbles, instead of having them sifted out, as was the ancient practice. The soil must vary according to the nature of the plant; but whatever be its quality, instead of being sifted fine, as gardeners formerly directed, let all the small pebbles remain, and pieces of charcoal, none smaller than nuts, be mixed so as to pervade the earth at distances of about two inches. Let the whole rest upon a drainage composed entirely of charcoal, the pieces not less than small walnuts. This treatment, suggested by nature, but first recommended by Mr. Barnes, of Bieton Gardens, secures acceptable food to the roots, and prevents the occurrence to them of that fatal evil—stagnant water. Let the plants once a year be taken out of their pots, their heads reduced in size, and a portion of the exterior roots removed. Let them be returned into the same pots, with similar attention to the soil and drainage; for it is an inconvenience mostly growing out of error, to give them larger pots annually. Mr. Knight grew even a Nectarine tree for more than nine years in the same pot. This restriction to small-sized pots cannot be always effected; and when shifting is necessary, it is advisable to remove, as much as possible, the old soil, of course without injuring the roots. This is generally best effected by soaking the ball of earth in water: and thus it may be washed almost entirely away, and the roots be left coated with a mud that is beneficial to them, and preserves them from drying, until the fresh soil is well settled about them. The number of roots within a given space of soil is much larger than when the plants grow in the open soil; for, being restrained by the side of the pot, they fork into numerous fibres, spread over its surface and even turn inwards again in search of food, they being gifted with the power of forming an extra number of radicles whenever deficiency of food renders such compensatory power necessary. The gardener endeavours to render it needless, by supplying the plants with liquid manure. But this richness of pasture can only be permitted to a certain extent; for if a plant is so well supplied with food as not to render a certain consumption of its proper juices in forming roots requisite, so much more of those juices is stored in the stem and branches, rendering the plant over-luxuriant, and, consequently, unproductive of flowers and fruit.

Mr. Barnes observes that the common earth-worm is too generally regarded as an enemy; whereas, by its perforations of the earth, it facilitates the admission of air to the roots of plants: and we have found that thrusting a knitting needle down through the soil of potted plants, as well as stirring its surface, is highly beneficial.

Hunt's pots, supported by small feet, are well calculated to facilitate drainage; and, by permitting the passage of air beneath the pots, they also admit it more readily to the roots.

Drainage, however, is not the only desideratum to potted plants, for they have many other difficulties to contend against, from which those in the open soil are preserved. The soil, at a few inches below its surface, is always, during winter, some degrees warmer than the exterior air; but, owing to the evaporation from the sides of garden-pots, this is rarely the case with the soil in them. To preserve this salutary warmth to the roots, a double pot has been suggested, but placing the plant-pot within a larger pot, and stuffing moss in the interval between them, is a cheaper and readier safeguard.

The importance of following the dictates of nature in keeping the roots of plants, natives of the torrid and temperate zones, as

warm or warmer than the branches, was too much neglected by the gardener in his forcing department. In the vinery, for example, the stem and roots are even now too often absurdly exposed to the rigour of winter; whilst the buds are expanding within the glass shelter in a temperature of 60°. A Vine so treated is like the felled Elm, which, allowed to retain its bark, though rootless, puts forth its leaves in the spring; expands its buds, and advances through the first stages of growth, merely from the sap stored within its stem and branches. This is no mere suggestion of fancy; for repeated experiments have shown that hot-house Vines, with their roots thus kept torpid by exposure to cold, were with buds unfolded; whilst other Vines, treated in all respects similarly, but with their roots kept genially warm, were actually in bloom.

But a worse mischief arising from this absence of reciprocal action between the roots and branches is the causing of disease. Thus the shanking and spot in Grapes, occur apparently from the roots not supplying the sap so fast as the expanding fruit requires it. The application of more warmth and genial moisture to the soil usually arrests the progress of these diseases. They are really like mortification in the animal frame. If the necessary supply of blood is not given to any part of the human body, as by cutting in two a main artery, that part becomes cold, shrinks, ulcerates, and mortifies.

Although an excess of water applied to the roots of plants is injurious to them, yet all of them are benefited by a due supply of that liquid, and the supply has to be regulated by the amount of their daily transpiration. The gardener knows that this differs in every species, and during different seasons. For instance, in a dry hot day, a Sunflower, three feet and a half high, transpired 1 lb. 4 ozs., being seventeen times more than the human body; during a hot, dry night, it transpired 3 ozs.; during a dewy night there was no transpiration; and during a rainy night the plant absorbed 3 ozs.

Therefore, the gardener finds it best to apply water during dry weather, early in the morning, just before the chief demand occurs, which is from six A.M. till two in the afternoon, or in the evening whilst hot weather continues, for the dews then supply the chief natural moisture at night; and during moist weather he refrains from the application entirely. Then, again, the gardener keeps his Agaves and other fleshy-leaved plants in a dry stove, for they transpire but sparingly in proportion to their mass, and require watering but seldom, and then abundantly; for they take up, as in their native siliceous soils, a large supply, and retain it pertinaciously in defiance of the long-protracted droughts to which they are exposed.

In the same species we have always found varieties transpire abundantly, and require a larger supply of water in proportion to the extent of their transpiring surface. Thus the broad-leaved Fuchsias and Pelargoniums transpire from two to three times as much as those varieties which have smaller and less abundant foliage.—J.

(To be continued.)

ALOE AS AN INSECT SLAYER.

I SEE you are alluding to Aloe for destroying insects; and I can assure you that I have not used anything else for the purpose during more than a year past, and I have a friend who has done the same. We soak a pound of Barbadoes Aloe in two quarts of hot water, then add cold to make it up to six gallons. With this liquor you may dip or syringe as you like. Small plants I dip in the tub; and the large ones I syringe, leaving them for a day or two, then washing them afterwards with clean water. It is excellent for fruit trees till the fruit sets, and then the Aloe is apt to make the fruit taste. I have not used any tobacco for any plant since I tried this.

I do not know how you will account for it, but I sent you the result of my trial in the month of October last, being the time I dipped all my Pelargoniums in a large tub of it previous to housing them. As I fancied I had made a mistake in the quantity, I wrote again the next day, so there were two letters in one week, and I felt very much surprised they were not noticed in your work. I have written others to you, and received answers to them, and thank you for the same; but I do think it very strange those letters were not acknowledged.

My friend is Mr. Tilley, of the Barking road; if you ask him he will tell you how useful it is to him. He says it does not cost one-third for Aloe that it did for tobacco. We pay 1s. 6d.

per pound for Barbadoes Aloes, and 8d. for Cape Aloes; but the Barbadoes is the best. It is stronger, and does not cause so much froth in working the liquor.—C. C. HOPKINS.

[We can only reply that the letters never reached the hands of the Editors. Two closely-following letters failing seems to indicate some misappropriation at the post office.—Eds.]

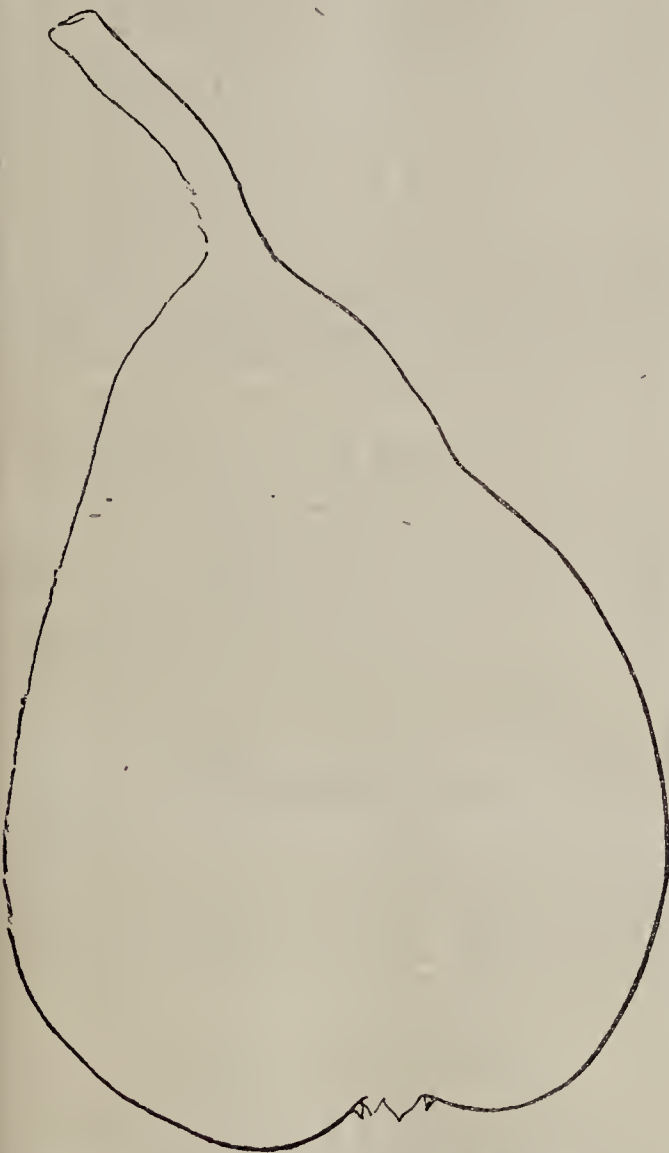
FRUITS AND FRUIT TREES OF GREAT BRITAIN.

(Continued from page 20.)

No. XIX.—LÉON LE CLERC DE LAVAL PEAR.

SYNONYMS.—*Blanc Perné*; *Bezy de Caen*.

The chief merit of this variety is its great keeping properties; otherwise its flavour and quality have nothing in them to recommend it. Generally it is merely as a culinary pear it can be used, and for this purpose it is well adapted; but sometimes, as in the last and present seasons, it is to be met with half buttery, and with a respectable flavour for the late season at which it ripens.



Fruit inodorous, large, and pyriform, the bulge towards the crown, and tapering gradually towards the stalk; three inches and a half long, and three inches wide; uneven and bossed in its outline.

Skin thick and tough, green at first, but becoming of a lemon-yellow colour as it attains maturity, entirely covered with minute brown dots and patches of brown russet, particularly near the stalk and the apex.

Stalk an inch and a quarter to an inch and a half long, dark brown and woody, inserted on the end of the fruit without depression, and sometimes accompanied with a fleshy swelling at its insertion.

Eye open, with long patent segments, which are black and downy, and set in a rather shallow basin.

Flesh white, firm, crisp, juicy, sweet, and slightly perfumed. Sometimes, when highly ripened, it is half buttery; but this is not frequently the case, and hence the fruit is generally used for culinary purposes.

In use from January till May. This is a seedling raised by Dr. Van Mons in 1825, and named by him in honour of his friend and pomological *confrère*, M. Léon le Clerc of Laval. This is a very different pear from Léon le Clerc van Mons; and both are distinct from Van Mons Léon le Clerc.—H.

HEATING BY GAS.

MR. EDMUND TONKS' heating apparatus may do well where he has the pipe carried into the kitchen chimney, the up-draught in which will carry off the humid air from the greenhouse. But do not let any one attempt his plan without this necessary adjunct; for, however calm the night, the down-draught from the greenhouse chimney, if opened into the air, will be in exact proportion to the difference of temperature within and without the greenhouse.

I have two houses heated by gas: in one the boiler is outside entirely; in the other I was forced to have the heating apparatus inside; and I own I was taken aback at the rush of air down the chimney to take the place of the air rarified by the heat of the drawing-room from which it opens.

I was obliged to put a screw door on the *furnace* (to use a large word for a small thing); and it is with the utmost difficulty on a frosty night I can get a lighted taper passed through the stream of air at the door in order to light the gas.

I am obliged to feed the gas with fresh air introduced through the floor under the boiler.

I write this simply to warn your readers, that, unless they have the kitchen chimney, or some other equally good *sucker*, they will only be disappointed if they follow Mr. Tonks' plan, as that is the secret of his success.—A., *Glasgow*.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 52.)

GRAPES.

MARCHIONESS OF HASTINGS.—Bunches large, loose, and broadly shouldered. Berries upwards of an inch long and about an inch wide; oval. Skin thin, greenish white, covered with thin grey bloom. Flesh squashy and watery, without much flavour. This is an early grape, and ripens in an ordinary vinery. Its only recommendation is the size of the bunches, which may be grown to weigh four pounds.

Maroquin d'Espagne. See *Black Hamburgh*.

Melier Blanc Hâtive. See *Early White Malvasia*.

Merrick's Victoria. See *Black Hamburgh*.

Meunier. See *Miller's Burgundy*.

MILL HILL HAMBURGH.—This is later than the Black Hamburgh, and is a very excellent grape. The berries are very much larger than those of the Black Hamburgh, and of a dark purple colour, but they are not so highly flavoured. It requires to be grown in a warm vinery, and is a fine late grape.

Miller Grape. See *Miller's Burgundy*.

MILLER'S BURGUNDY (*Miller Grape*; *Meunier*; *Blanc Millervébe*).—Bunches short, cylindrical, and compact, with a long stalk. Berries small, round, inclining to oval, uniform in size, with short-warted stalks. Skin thin, black, and covered with blue bloom. Flesh red, sweet, juicy, and highly flavoured, and contains two seeds.

An excellent grape for out-door cultivation, as it ripens well against a wall. It is easily distinguished from all other grapes by its very downy leaves, which, when they are first expanded, are almost white, and this they in

some degree maintain during the greater part of the season. On this account it is called "The Miller."

Mogul. See *Morocco*.

Money's St. Peter's. See *West's St. Peter's*.

Morillon Hâtif. See *Black July*.

Morillon Noir. See *Black Cluster*.

Morillon Panaché. See *Aleppo*.

Morocco (*Ansley's Large Oval*; *Black Morocco*; *Black Muscadel*; *Le Cœur*; *Horsforth Seedling*; *Mogul*; *Red Muscadel*).—Bunches large and shouldered. Berries of unequal size; some are large and oval. Skin thick, reddish-brown, becoming blackish-brown when fully ripe; beginning to colour at the apex and proceeding gradually towards the stalk, where it is generally paler. Flesh firm, sweet, but not highly flavoured; the small berries are generally without stones, and the large ones have rarely more than one.

This is only a second-rate grape as regards flavour. It is very late, and requires stove heat to ripen it thoroughly.

Moscstel Commun. See *White Frontignan*.

Moscstel Menudo. See *Red Frontignan*.

MUSCAT OF ALEXANDRIA (*Alexandrian Frontignan*; *Malaga*; *Muscat of Jerusalem*; *Muscat of Lunel*; *Panse Musqué*; *Passe Musqué*; *Tottenham Park Muscat*).—Bunches large, long, loose, and shouldered; stalk long. Berries large, oval, unequal in size, and with long, slender, warted stalks. Skin thick, generally greenish yellow; but, when highly ripened, a fine pale amber colour, and covered with thin white bloom. Flesh firm and breaking, not very juicy, but exceedingly sweet and rich, with a fine Muscat flavour.

A well-known and most delicious grape, requiring a high temperature to ripen it thoroughly; but it may be sufficiently ripened in a warm vinery, provided it has a high temperature at the time of flowering and while the fruit is setting. The vine is an abundant bearer, but the bunches set badly. To remedy this defect, a very good plan is to draw the hand down the bunches when they are in bloom so as to distribute the pollen, and thereby aid fertilisation.

It is this grape which furnishes the Muscatel Raisins, imported in boxes from Spain.

Muscat d'Août. See *August Muscat*.

Muscat Blanc. See *White Frontignan*.

Muscat Fleur d'Orange. See *Chasselas Musqué*.

Muscat Gris. See *Red Frontignan*.

MUSCAT HAMBURGH (*Snow's Muscat Hamburg*).—Bunches above medium size, compact, and shouldered. Berries rather large, varying from round to oval. Skin tough, but not thick, deep purplish-black, covered with thin blue bloom. Flesh tender, very juicy, rich, and sugary, with a fine Muscat aroma.

This excellent grape may be ripened in a house subjected to the same amount of heat as is generally given to the Black Hamburg, and it has also been ripened in a cool vinery.

Muscat of Jerusalem. See *Muscat of Alexandria*.

Muscat de Jesus. See *Chasselas Musqué*.

Muscat de Juillet. See *July Muscat*.

MUSCAT ST. LAURENT.—Bunches similar to those of Royal Muscadine. Berries small, roundish oval. Skin thin, greenish-yellow, becoming pale amber when thoroughly ripened. Flesh very tender, melting, and juicy, with a refreshing, juicy, and a distinct Muscat aroma. This variety, introduced by Mr. Rivers, that gentleman says, is very early, and will ripen on a wall with the Sweetwater. It is well adapted for pot culture in the orchard-house, and in cool vineries.

Muscat of Lunel. See *Muscat of Alexandria*.

Muscat de Naples. See *Purple Constantia*.

Muscat Noir. See *Black Frontignan*.

Muscat Noir d'Espagne. See *Trentham Black*.

Muscat Noir Ordinaire. See *Black Frontignan*.

MUSCAT OTTONEL.—This is an early variety of Muscat grape, introduced by Mr. Rivers, of Sawbridgeworth, and which ripens its fruit in a cool vinery. That gentleman describes it as having a compact bunch, and round, white, and rather small berries. "A very hardy, nice Muscat grape."

Muscat Précoce d'Août. See *Early Black Muscat*.

Muscat Primavis. See *Chasselas Musqué*.

Muscat Romain. See *White Romain*.

Muscat Rouge. See *Red Frontignan*.

Muscat de Sarbelle. See *Sarbelle Muscat*.

Muscat de Saumur. See *Early Saumur Muscat*.

(To be continued.)

CALYPTRARIA HÆMANTHA.

If ever plants have been bewitched, this is one of them. We first heard of it from the Doctor, as the "most glorious" plant ever introduced into Europe. From that time it has been under a spell. Like the glories of Chiswick, do what you will with it, it will neither be right, nor right itself. The second time we heard of it was in THE COTTAGE GARDENER (Vol. XIV.), where it is said to have been sent over by Linden to one of Chiswick Shows, at which Dr. Lindley and Mr. Gordon were the Judges on new and extremely rare plants. But Linden's Calyptaria escaped their notice altogether, and went home without a prize; it was bewitched! The third notice of it is also in THE COTTAGE GARDENER, where it is said to be on sale in England for the first time, and where it is suggested to be, like *Pteroma elegans*, a greenhouse plant; but being a bewitched plant, no one would believe that, and everybody kept it in the stove and grumbled at the Doctor for salpiglossing it into the world. But that is a new word which needs to be explained to country folks. Salpigloss means trumpet-tongued, and to salpigloss a thing is to introduce it with the flourish of trumpets.

Well, everybody who held the spell-bound plant blamed the Doctor for salpiglossing it, just at the very time when they themselves were most to be blamed for keeping the plant in the stove with as much show of reason as if they too were under the spell. But so it was till I found it out the other day at Fraser's Nursery, growing most beautifully along with a group of hardy and half-hardy specimens in a cool greenhouse, as I intended to show, at page 47, with a flourish of trumpets. But my second sight was as nothing against downright witchcraft and the printers, who, with their own imp at their elbow, put my *Calyptaria hæmantha*, "*Caliphuria hæmantha*," just taking the tongue out of my trumpet. But Mr. Fish, and people like him, will say that I wrote "*Caliphuria*" on purpose for a wrong scent, in order to give an opportunity of salpiglossing the thing in a new light—to recommend the "most glorious" *Calyptaria hæmantha*, a second time, as a fit and proper match to *Pteroma elegans*.

Well, there is a most remarkable coincidence between the two names. *Calyptaria* comes from New Granada, and, as I believe, from high up on the Merida range; and from the same country there is a most beautiful half-hardy hurb, called *Caliphuria*; and it is as likely as not that I was musing on the Opera Girls, and other hulbs at Frasers, when I was writing off my notes, and fell into the error myself. At all events, I believe the hurb and the *Mcclastomad* would do under the same roof.—D. BEATON.

QUERIES AND ANSWERS.

SEEDLINGS IN A WALTONIAN CASE.

"Mr. Beaton has given us most useful practical rules for the management of the Waltonian Case; but one difficulty which I find in the use of the Case he has not touched on. I fail with my seeds. They come up in abundance; but before the second leaf appears they are so drawn and spindly, that they seem to die from exhaustion. My Case stands in my greenhouse. I give it all the air I can without letting the temperature fall below 70°."—AN ADMIRER.

[The way Mr. Walton himself, and more especially that by which Mrs. Walton, manages tender or any kind of seedlings in their own Case cannot be excelled. Two of the most difficult seedlings with gardeners are *Microsperma Bartonoides* and

Linum grandiflorum; but Mrs. Walton finds no trouble at all with them in the Case. The reason why has been told repeatedly. There is a cold case standing in the greenhouse all the spring by the side of the Waltonian (a common box, twenty inches or two feet long, a foot or more wide, and nine inches deep), and it is covered with two or three loose squares of glass. While the Waltonian is kept hard at making cuttings, any hardy or other kind of seeds are put in just to accelerate sprouting. As soon as the hardy seedlings are up, the pots are transferred to the cold case, and the stove ones are left in the Case as long as there is head room for them. The same thing must be done with such seeds in a Cucumber-bed—no sort of difference between the two modes. About the candles for this Case, Mr. West tried Palmer's people at first, but they could not make such a candle as he wanted; and Price's people have not yet been more lucky; but, like the Suffolk people, they "expect." A candle would be the best source of heat after gas, and a lamp the next best.]

SPRING FLOWERING BULBS.

"In answer to your correspondent 'H. N. E.' (page 25), I beg to say that my *Triteleia uniflora* is white, with a slight tinge of blue in the middle of each petal; in fact, it is exactly like the figure of *Milla uniflora* in 'London's Bulbs.' The plant when bruised has a strong garlic odour. *T. uniflora* can scarcely be called a bulb, being more of a fleshy tuber. I had the dry roots from Van Houtte some years since. I enclose a bloom for your inspection. Should Mr. Beaton desire a root or two for the Experimental, I shall be most happy to hear from him. I may here remark, that a root of *Brodiaea ixioides* I had from Carter last autumn is very much like *T. uniflora*; the only difference being that the petals of the *Brodiaea* are slightly curled inwards, whilst those of *Triteleia* are quite smooth. If any of your readers have the blue *T. uniflora*, or *T. laxa*, I shall be pleased to hear from them. There are also several other bulbs described in London, I should be glad to get,—viz., *Ixiolirion Tartaricum*, *I. montanum*, and *Milla biflora*. Can you tell me where they are?

"*Sanguinaria Canadensis* bloomed with me for the first time just after my last letter to you; its white star-like flowers are very beautiful. *Anemone apennina* is an old favourite with me. Is there not a white variety of it? also, a blue one of it, *nemorosa*? In the *Cottage Gardeners' Dictionary* there are many varieties of the *Anemone* enumerated, and many of them, I fancy, must be very beautiful. I wish I could get them. Perhaps here, again, some of your readers can help me.

"The earliest *Scilla* with me is *Scilla palmata*, being about a fortnight earlier than *Siberica*, or *amanula praxos*.

"I fear I must tire you with my long, rambling letters; but I think that by these means we may, perhaps, be able to hunt up many a valuable flower now little known, and so increase the beauty of our gardens, and the happiness of ourselves."—MYOSOTIS, Post Office, Shepton Mallet, Somerset.

[Your *Triteleia* (pronounced *eia*) *uniflora* is "conspicuous by the absence," as Lord John Russell would say; for it is not a *Triteleia* at all, but a much scarcer bulb, called *Leucocoryne alliacea*. It is not quite so handsome as *L. ixioides*, but is superior to any of the *Triteleias*; and we doubt not but Mr. Beaton would be delighted by having such a rarity presented to the Experimental Garden. Your account of *Brodiaea ixioides*, from Mr. Carter, is a sure and certain indication that you have not that bulb. In the first place, it never flowers in the spring or summer, but always in the autumn, and rather late; and, in the second place, the flowers are as flat and as large as a shilling, and the colour is that of the richest light blue Hyacinth. We believe we flowered the last bulb of it which bloomed in England, more than a dozen years back, and it is the very plant on which the genus *Leucocoryne* was founded. The *Ixiolirions* are, indeed, most beautiful bulbs, but there are none of them in England, as far as we know. *Tartaricum* is the *Amaryllis Tartaricum* of Pallas, and grows on the Altai range, where *Picea Nordmanniana* comes from; and those who procure seeds of *P. Nordmanniana* could as easily procure bulbs of the blue *Amaryllis* of the Altai. As for *Ixiolirion montanum*, we all of us lost a fair opportunity, this spring, of having bushels of it sent over, by not having a skilful botanist in the suite of Prince Arthur. It was in flower when he left Jerusalem at the end of March, probably from the other side of the Mount of Olives, to the confluence of the Dead Sea; also, on the east of Jordan, all the way to Aleppo, if not to

Damascus. So plentiful is it in those parts, that it is one of the spring bulbs which was believed, not long since, to have been the "Lily of the Field;" but there is very little difference between it and the Altai plant, and a third form of it is found in Seythia. *Milla biflora* is from Mexico, and would live out the winter in front of a wall. The flowers are of great substance, and last a long while, and are as white as the driven snow; but where to get it—echo says "where?" There is no white *Anemone apennina* on record; but a blue variety of *nemorosa* exists; also a small blue *Anemone* from the Ural range. *Scilla palmata* must be a mistake. There is not a palmate leaf or any other part that could be so called, among all the bulbs, as far as we can remember. We quite agree that *Sanguinaria Canadensis* is one of the best spring flowers, and we are ready to take the "field" with you whenever there is a "meet."]

PLANTING OUT BEDDING PLANTS—HERBACEOUS PÆONIES—CYTISUS RACEMOSUS PRUNING.

"As the time for putting out bedding plants is approaching, would you kindly tell me whether I should plunge them in the pots, or take them out of the pots before I plant them in the beds? My soil is a light, sandy one.

"Might I trouble you for a list of a few of the best herbaceous Pæonies?

"Some of my Perpetual Roses are getting very unhealthy, the tops of the shoots die down to near the root. The leaves that remain on the plants look quite blanched. I grow them all on their own roots. *Auguste Mié* is particularly unhealthy with me.

"I have a fine plant of *Cytisus racemosus*, which has stood the last three winters uninjured. It is fully seven feet high, and in bloom now. It is getting a little bare about the roots. Would you advise me to shorten the branches after it has done flowering?"—AN AMATEUR.

[Bedding plants must be planted out of the pots, except in very special cases.

Lists of any family of plants are fit only for first-rate gardeners. Amateurs, and all young beginners, are only bewildered by lists. No one can buy all the plants in a list; and unless he has the practical experience to select the best kinds for his place, what he does buy out of a list may be the most unsuited for him. A few of the best herbaceous Pæonies would cost from five to seven guineas; and would be acceptable to some people, but altogether out of the reach of thousands, who could only be disappointed on finding out the price of our list. Therefore, we set our faces altogether against lists. A selection of this, that, or the other, and not to exceed a certain sum per plant, or dozen, is what ninety-nine people out of a hundred want when they write for lists. One hundred names would not nearly exhaust the herbaceous Pæonies, and one-fourth of their numbers are really good kinds; but ask for the best, and they will charge from 7s. 6d. to 30s. a-piece for them. But the following six are very good and very cheap:—*Tenuifolia*, a single and early kind; *Albiflora fragrans*, white; *Humea*, crimson; *Potsii*, crimson; *Whitlegii*, white; *Officinalis atrorubens*, dark red; and *Paradoxa fimbriata*, purple fringed, and all double except the first. Even these will average 2s. or 2s. 6d. each.

Where *Auguste Mié* will not do on its own roots, Moss, Cabbage, and Dog Roses, would not exist at all. The soil is too poor and too sandy for Roses; and none but the coarsest of the Hybrid Chinas have a chance on it. Good heavy mulching, plenty of water, and liquid manure occasionally, and to prune close, are the only chances under such conditions.

It is the best plan to prune the *Cytisus racemosus* as soon as it is out of bloom; and when a plant of it is big enough, the pruning may be as closely done as on the Red and White Currants. That is as much as reducing the whole of the last growth to the condition of spurs; but, of course, no one need prune so hard unless he chooses. Therefore, you see pruning will not hurt this plant. Twenty years back we had plants of it, in pots, about London quite as big as yours.]

THE PANSY FLY—PRUNING THE POMEGRANATE.

"Will you be so kind as to tell me the cause of the almost utter demolition of some fine Heartsease blossoms, of which I enclose a specimen? From the minute circles in which the petals

are perforated, it is clear the depredator is not the garden slug, of which the bed is carefully cleared. I have dusted the flowers with snuff, soot, and sulphur, to little effect. Can you advise me what else to do? The plants are, for the most part, last autumn's seedlings, and exceedingly healthy. They are planted in light garden-mould, with a southern aspect, exposed to the sun for several hours in the day, with light and air. In fact, in a most unexceptionable locality—in the south of Devon.

"I would also ask your advice respecting the pruning of an old Pomegranate tree, which (together with a fine and constant-flowering Magnolia, Myrtles, and Banksian Roses) grows against the wall of my house, but *blows but scantily*, and never brings any fruit to perfection. Ought it to be severely pruned; for the foliage is redundant, the soil is light and dry, and the situation very hot in summer? It is also near the sea. Ought the second crop of Figs to be taken off the standard Fig trees? In the hot summer of 1857 I had several dozen of the latter crop equal in flavour, though not in size, to the first."—SALTERTON.

[We shall never forget the sight we saw near Salterton, and the kindness we experienced there, and would be doubly pleased if we could aid you. The holes made in the Pansies are done by the *Agromyza violæ*, or Pansy Fly, a very small dark insect. We know of no means of warding off his attack; but would try fine gauze, and that sprinkled with tobacco water, and dried before placing securely over the bed. This would let sufficient light and air through, and would, most likely, keep out the insects.]

The Pomegranate we would thin out considerably, and just prune the roots a little. Perhaps it makes rather too much wood to be fully exposed to sun and air. A little loamy soil about the roots would also make the growth more stubby.

If your second crop of Figs show pretty early in the autumn, and as you ripened them in 1857, there could be no harm in leaving a number of the first-formed ones; but all the rest we should prefer removing when they were the size of small marbles. In removing, cut them clean off with a sharp knife, leaving the smallest piece of the stalk. We are giving this advice on the presumption that young Figs much larger than a large Marrow Pea will not stand over the winter, and swell freely the next season; but in your extraordinary climate they may pass the winter uninjured, though much larger, and, in such a case, decidedly prefer your own experience to ours. Our advice is founded on the fact, that, north of London, young Figs of any size do not pass through the winter and swell freely next season; and if these are allowed to grow to any size—say nearly half their usual size in autumn, and then drop, they not only so far waste the fruit-bearing powers of the tree; but the part of the shoot on which they were placed rarely, if ever, shows fruit early next spring, or at all. Whilst by cutting off the young fruit as suggested, one or two young fruit appear from the base of the stem of the fruit cut off. In other words, in cultivating the Fig out of doors in the north, all that appear in autumn at all early, drop off in winter; and the young Figs that show early in spring, and ripen in autumn, appear almost exclusively at the points of the shoots, leaving the part behind bare of fruit. By removing them as advised, there is a chance of having fruit all the length of last summer's shoot. Under glass, of course, there is no difficulty in having and ripening two or three crops.]

CUCUMBERS CLUB-ENDED.

"I have three frames of a good sort of Cucumber in full bearing, showing a fair sample of fruit. When the fruit is about ten inches long it begins to get large at the end, something like a plumber's soldering-iron, and fills fast with seed. Now, the regular size of this Cucumber is from eighteen to twenty inches, when grown properly, and as straight as a gun-barrel. I have plenty of dung heat, and good frames for growing them in."—GEO. RAY.

[Refrain from fertilising the female blossom. Nay, to prevent it, as soon as the blossom shows on the point of the fruit, tie a string round it about the middle, to prevent a bee or insect carrying pollen on its wings. In addition to this, thin out your fruit, so as to leave only two or three in full swelling on a plant at the same time. When one is cut another will succeed. Save one or two of your chubby fruit for seed; for you will not, probably, get one in a dozen of long, straight fruit. We value these long Cucumbers merely for their look. One ten inches long is generally crisper than one of twenty; but

for those who admire fine, long, straight fruit, we have given a recipe worth the price of a volume.]

LIQUID MANURE.

"I have not seen in your valuable periodical any lengthened account of the virtues of liquid manure. To what may it be applied with advantage? To fruit trees? If so, at what time of year? Roses? Shrubs? May it be used in the greenhouse with advantage? An article on this subject would be of great advantage, especially at the present time, when in the east of England there is so much complaint of drought; the ground for a considerable depth is dry, and there is still a strong prejudice against liquid manure in the minds of many gardeners. Can any of your correspondents inform me whether it would do any good towards restoring and quickening the verdure of decaying grass plots in gardens?"—A CONSTANT READER.

[We know a very productive garden that is fertilised chiefly by liquid manure. Those who are prejudiced against it can never have fairly tried it. On the other hand, many cultivators maintain that manure should never be applied in any other form. We are decidedly of opinion that it is the most economical mode of manuring; and we believe that at a not very distant date it will be generally adopted. You will see what Mr. Beaton says about its employment to Roses, and our experience entirely coincides with his. In the kitchen garden we have applied it with marvellous benefit to Asparagus, Rhubarb, and all the Cabbage-worts. In the fruit garden we give it annually to all orchard trees, to Vines, and to trees in pots. In the flower garden we water all our borders with it two or three times annually. The liquid manure we employ is house sewage. We extract the following from *The Cottage Gardeners' Dictionary*, and abide by what it says:—"Liquid manure is the most advantageous form in which fertilisers can be applied by the gardener to his crops. It is the most economical, most prompt, and most efficient mode. The manure is presented to the roots in one of the only forms in which the roots can imbibe food, and the manure is spread regularly through the texture of the soil. If, instead of digging in stable-manure, each crop were watered occasionally with liquid manure, the produce would be finer and more abundant. We have often employed, with decided effect, in our own garden, for Vines, Peach, and standard Apple trees, liquid manure, prepared either by mixing one part, by weight, of cowdung with four parts of water, or the collected drainage of the stable and cow-house. It has been found advantageous to plants cultivated in stoves to apply even a liquid manure, composed of six quarts of soot to a hogshead of water; and, although this is a very unchemical mixture, yet it has been found by Mr. Robertson to be peculiarly grateful and nourishing to Pines, causing them to assume an unusually deep, healthy green; and, for stoved Mulberry, Vine, Peach, and other plants, the late Mr. Knight, of Downton, employed a liquid manure composed of one part of the dung of domestic poultry, and four to ten parts of water, with the most excellent result.

"*Guano Liquid Manure*.—Ten gallons of water will readily dissolve, or keep suspended in a state of minute division, about 50 lbs. weight of guano. When applied to plants, not more than five ounces should be added to that quantity of water. If it is made stronger, it injures or kills the plants to which it is applied.

"*Sheep's-dung*, if employed for making liquid-manure, should be a peck to thirty gallons.

"When *cowdung* is used, boiling water should be first poured upon it, as it is apt to be full of destructive larvæ.

"*Sulphate of ammonia*, and any other salt of ammonia, must not be used more than a quarter of an ounce to each gallon.

"The rule applicable to all these liquid manures is—*Give it weak and often*."]

OXALIS CRENATA CULTURE.

"Can you inform me of the ordinary uses of the *Oxalis crenata*? I have several small tubers grown from one sent from Paris last year, where, I understand, it is used; but have never been able to find any mention of it in *THE COTTAGE GARDENER*, or any other horticultural publication."—A SUBSCRIBER.

[It is thus spoken of in the ninth volume:—"Oxalis crenata, once lauded for its edible tubers, and which seemed driven out of the field by *Oxalis Deppei*, but of which little has been seen or

heard lately; so difficult is it to get *artistes* of the kitchen, or gentlefolks either, to patronise new-fangled things if of home growth; though, certainly, the flowers and points of shoots were nice, and pretty too, in a salad; the stems made no bad tart; and the tubers well-dressed, being destitute of acid, were immeasurably better to simple tastes than many of those unpronounceable *kickshaws* which epicures make so much of, because they pay so nicely for them."

It was noticed about eight years ago by a correspondent, in a contemporary, as follows:—"Travelling lately through Belgium, I received from M. de Bellemain, a fellow-traveller, some details which fully corroborate the statement of Baron Suarée as to the agreeable produce, &c., of this vegetable. Commissioners were appointed last year, by the National Assembly, to report upon the communications of M. de Bellemain relative to its culture and uses, and they reported to the following effect:—"The *Oxalis* had been cultivated in Brittany during many years by M. de Bellemain on light soil, treated as to manure and tilth as for Potatoes; and the produce has been the same as that obtained by Baron Suarée—two hundred hectolitres per hectare, or four tons to the English acre—no very formidable rival to the Potato in respect of weight; being, in the Commissioners' judgment, two-thirds of the produce of the same extent of land under Potatoes. The quantity of flower yielded by the *Oxalis* was in a still lesser ratio to that afforded by the Potato (the investigation was incompletely conducted): but, on the other hand, the non-feculent portion of the *Oxalis* appeared to be less fibrous, and, therefore, more digestible as food than the corresponding portion of the Potato. The Reporters pronounce, then, that what the Potato gains in amount of flour or starch is counterbalanced in the *Oxalis* by its superior nutritiousness; in what degree can only be justly estimated by a long series of experiments. Some bread cakes were made of wheaten flour, and the tubers of the *Oxalis* steamed, with the skins unpeeled, and mixed in the ratio of seven parts to nine; and this bread, without entering into an exact analysis, proved to be whiter and lighter than that of first-quality Paris bread. The *Oxalis crenata*, like the Potato, is suited to many culinary purposes.' If the report stopped here, we should not be disposed to let the *Oxalis crenata* enter into the lists with the Potato (supposing that the latter shall be one day re-established in health); but we are assured that the haulms of the former, unlike those of the latter (which are positively noxious), are not only innocuous, but capable of yielding a very palatable and wholesome beverage. Moreover, the stalks are so abundant and succulent, that they have yielded four hundred hectolitres of fermented beverage, resembling the *squaw* manufactured in Russia, without diminishing the produce of the tubers. This certainly staggers me not a little, as it is opposed to the received principles of vegetable physiology. But let the report be heard to its conclusion. 'This beverage would be highly pernicious in those localities where the water is bad, and where the people cannot afford a better sort of drink. The expense of manufacturing the beverage, of which M. Bellemain produced some two years old, is merely that of the time and labour occupied in expressing the juice from the herbaceous stems.'

"The Commissioners conclude that M. Bellemain has performed infinite service to his country by bringing the edible portion of the *Oxalis* to perfection, and giving it a rank with the Potato, or else immediately next to it as an esculent, and in developing its new properties as a material for the easy manufacture of an agreeable and wholesome drink. Such is a condensed statement of the Commissioners' report, which states M. de B. has published a pamphlet on the culture and uses of the vegetable in question. The tubers should be planted in April. The smallest answer perfectly for seed. They should be three feet apart or more in every direction to allow full growth to the stems and foliage."]

VARIETIES.

APPEARANCE OF THE SWALLOW IN NORTHERN EUROPE.—Writing in 1827, Mr. Erman says:—"The house-swallow (*Hirundo domestica*) made its appearance at Königsberg, on the 30th of April; consequently, on a day which, according to the four and twenty years' observations of the curate, M. Sommer, has a temperature of 47° Fahr. At Gosport (in lat. 50° 50'), the 20th of April is the day of the swallow's first appearance, with a variation of only seven days in the course of twelve years. The temperature of that day is there 50°. At Berlin (lat. 52° 31'), the arrival of the swallow falls, as would appear from observations made for six years, on the 18th of April, when the tem-

perature is about 46°. At Apenrade (lat. 55° 3') the same phenomenon occurs on the 23rd of April, with a temperature of 46°; at Copenhagen (lat. 55° 41') on the 5th of May, when the temperature is 48°. Since it is remarked throughout Europe, that for this phenomenon of animal nature, as for the several stages of vegetation, there is a near coincidence of the accompanying temperatures, the question naturally arises, whether the great differences observed in Asia in the time of the first appearance of the house swallow depend on the warmth of the air. At Guryef, on the Caspian Sea (and in lat. 49° 6'), the swallow is seen as early as the end of March; while in Dauria, beyond Lake Baikal, in the same latitude, it does not make its appearance till the second week in May; and at Turukhansk on the Yenisei (in lat. 65° 45'), not till the middle of June."—(*Erman's Travels in Siberia*.)

FRUITS OF BOKHARA IMPORTED INTO NORTHERN RUSSIA.—Under Bokharian names, which are at times, however, a little disfigured, are to be bought in the bazaar of Kasan, dried *Apricots* (*Urük*), the soft coats of which and the interior pulp are equally agreeable. The coat, or skin, is very sweet, and in the dried state is from four to six lines thick. The almond of the kernel, also, is perfectly sweet: its woody receptacle is at the same time as smooth, hard, and of the same figure, as that of the Apricot cultivated in Europe. It seems, therefore, as if certain modes of culture could suffice to remove the prussic acid and the bitterness from the almonds of many stone fruits, and to make them eatable; just as the influence of cultivation appears to have created the difference between the bitter and sweet varieties of the common Almond; for in Cato's time the Romans were acquainted only with the bitter kind, and it was not till a later period that the sweet variety was imported into Italy under the name of Greek Nuts. Now both kinds are cultivated in the same places. Here, also, may be found, under the name of Kishmish, dried *Grapes*, of a kind wholly without seeds. Raisins made from Grapes of the ordinary kinds of Vine, bear here the common Russian name of *Isüm*, which is also used by the Tatars, in whose language *Usüm* still means a Grape. In like manner the dried *Plums* imported by the Bokharians, are called by the Russian name (*Slivi*); that fruit being already well known from other sources. But the Pistashi, as they are called, or else Fistashi (*Pistachio Nuts*), bear the Bokharian name. These are Pear-shaped seeds, or what botanists would call *Drupa*, about six lines in length, and two or three lines broad at the widest part, with close-fitting, yellow, parchment-like covers, and with an oily split kernel of bright-green colour. These Pistachio Nuts are usually brought here in Kasan, together with yellowish manna, which is, doubtless, produced in large quantities by the plant itself; for the Pear-shaped seeds are found often enough enclosed in the indurated manna, or glued together by it; so that it is obvious that both productions, the manna and the seed, were picked up at the same time from the ground at the foot of the tree. Dried *Dates* too (in Russian *Finik*), are sure to be found among the Bokharian fruits. The Bokharians sell the pood of *Urük* to the Russian traders for sixty-five roobles, that is to say, one pound for about 1s. 5d.; the other fruits usually cost twenty-five roobles the pood, or 7d. the pound. Here, too, these and other sweet vegetable productions are much in favour with the Russian people; and, perhaps, a general ground for that partiality which they evince to fruit, and which has been so often referred to, may be found in the circumstance that, during the long and strict fasts which they are obliged to keep even in winter, it allows them an agreeable change with the ordinary fish diet. In summer, the vegetable food of the inhabitants of Kasan is extremely various and abundant. Not only do all kinds of bread corn, from Spelt, which is sensitive as to climate, and Wheat down to the harder Barley, grow well in the fields, but the gardens also produce Potatoes, Peas, Turnips, and Cabbage, Gherkins and Pumpkins in great plenty; while the Kirgiz and Russians, inhabiting the country to the south, bring to the market a large supply of Sweet Melons (*Cucumis Melo*; in Russian, *Dina*); and a still larger of Water Melons (*Cucurbita citrallus*; Russian, *Arbus*). This last-mentioned extraordinarily juicy and cooling fruit lies in great heaps in the market; and being sold for next to nothing, it affords to the poorer classes a grateful as well as wholesome nutriment.—(*Ibid.*)

TO CORRESPONDENTS.

GALVANIZED IRON WIRE (A. B.).—This is not in any way injurious to the Vines trained to it. On the contrary, we prefer it to any other.

BERRIES IN GRAPES BECOME DARK-COLOURED (T. J.).—They are severely affected with the spot, a kind of gangrene. At least, so we guess; for no

one can tell for certain from smashed berries. Why did you not put them into a little box to protect them from the post-office punch? If it is the spot, the roots are probably not growing in a warmth sufficient to keep them in activity equal to the demands of the branches, which you say are growing vigorously. But you give no particulars.

CHURN (A Novice).—There is none better than the American, which can be had of any of the iron implement manufacturers who advertise in our columns.

SILKWORKS' EGGS (Thos. Collier).—They are to had in any quantity in Covent Garden, where any friend in London could procure them for you.

CONSERVATORY MANAGEMENT (A. T.).—You will find much to suit your purpose in our "Greenhouses for the Many," price 6d., and "Window Gardening for the Many," price 9d., and a series of articles in this work. More will soon follow, to meet the wishes of many subscribers; and these would be rendered more useful, if we knew the circumstances, size of house, and the chief aim of as many readers as possible. We would shelve our own prepossessions, if by so doing we could meet better the wishes of our readers. Frigi domo makes a fine shade for the roof, while bleached tiffany would be the neatest for the fruit. We should prefer, however, having it inside; though it would not be so effectual, unless you go to the expense of having it securely fastened. We are content with dulling our glass with strong size put on bot with a brush. We presume you want hardy climbers. We would use the following:—*Glycine sinensis*, *Jasminum nudiflorum*, *Forsythia viridissima*, *Cydonia Japonica*, *Rosa Banksia*, *R. Safrano*, *R. Malmaison*, *R. Blairii*, and *Lonicera flexuosa*.

BALSAM AND CARNATION SEED SOWING (W. G.).—The Carnation seedlings will not bloom until next year. This is generally the case. Plants sown now will be in bloom in July, if you do not want large plants; but if you wish to have huge, bushy plants at that time a mass of bloom, you would require to be growing young plants now, never letting them stop for pot-room until they had the last pot in the first week of June, or earlier, and all the flowers removed, so that they should all be left after the middle of June, if the plants are wanted to be at their best by the middle of July. There will probably be something more soon, but the treatment has often been given.

PORTLAND CEMENT TANK FOR FISH.—"Doubtless, many of your correspondents possess fountains, and also the pleasing accompaniments, gold and silver fish. Would they be so obliging to impart information as to the following matters:—I have a basin made and finished inside with Portland cement, which is fatal to the fish. How can it be obviated? Is there any precaution as to basin and fish necessary, on the approach of and through the winter?"—A READER.

[We shall be obliged by information in answer to this query. We know a Portland cement tank in which gold fish live healthily; therefore, we think there must be something peculiar in that employed by our correspondent.]

PEARS (R. H. A.).—The measurement of the diameter of *Uvedale's St. Germain* is evidently an error, and must refer to the circumference; but the length is not at all unusual in well-grown specimens.

SEA WATER FOR AQUARIUM (A Subscriber).—It will not keep good unless it is constantly aerated either by the syringe or pouring it from one vessel to another from an elevation.

MRS. LAWRENCE (An old Subscriber).—This great patroness of floriculture died in 1855. You will see a notice of the sale of her plants in our 15th volume.

NATAL GOOSEBERRY CHERRY (A. Z.).—We suppose this is the "Cape Gooseberry" (*Physalis edulis*), on which you will find a long essay in our No. 513.

GREEN ON FLOWER-POTS (H. A. S.).—We find the best preventive is to paint their outsides annually. Some persons paint them green, but we prefer dark-stone colour.

NAME OF PLANT (H. E.).—The name of your plant is the Summer Snow-flake, or the Mountain Snowdrop, *Leucojum aestivum*. Found wild in moist meadows and marshes near rivers. It is not common.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

MAY 11th and 12th. SKIPTON (Yorkshire). Sec., Thomas Robinson.

MAY 25th and 26th. BEVERLEY. Sec., Francis Calvert, Surgeon, &c. Entries close May 3rd.

JUNE 1st, 2nd, and 3rd, 1859. BATH AND WEST OF ENGLAND. At Barnstaple, Devon. Director, S. Pitman, Esq., Rumlwell Lodge, Taunton. Entries close May 1st.

JUNE 6th, 7th, and 8th, 1859. GLASGOW. Sec., Robert McCowan, 17, Gordon Street, Glasgow.

JULY 1st, 2nd, 4th, and 5th. SHEFFIELD. Wilson Overend, Chairman. Entries close the 15th of June.

OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. Sec., Geo. Griffiths, 7, St. Swithin Street, Worcester.

N.B.—Secretaries will oblige us by sending early copies of their lists.

SELECTING CHICKENS FOR EXHIBITION.

I PUT on my wide-awake to visit my yard, and select the future winners. What a comfort a wide-awake is, compared to the wretched things men are compelled to wear in towns! Why can we not emancipate ourselves from uncomfortable fashions, and wear only that which is pleasant? Coats have altered for the better; and a good jacket is no longer *outré*, even if seen in Bond Street. A man need not now be "cramped, cabled, and confined," in a coat which will allow no motion. The small

tablecloth he used to wind round his neck is abolished; but, last misery of all, the abominable hat remains. It is worth while to get into the country if it is only to enjoy ease in the covering of the head. We suppose the day will come when soldiers and policemen will be emancipated from the horrible stock-and-tight uniform. It always amuses us to read from "our own correspondent" in the Crimea, or India, virtuously indignant remarks on the eccentric costume of English officers off duty. Or, a straight-laced reporter laments the decadence of appearances, and writes that noblemen and gentlemen are no longer distinguished by dress from dog-fighters and fancy-men. It is a mistake. Dress can neither disguise the "rough" nor conceal the "gentleman." What a luxury for the officer off duty to get into loose-fitting garments! And why do men following avocations that require exertion invariably wear loose ones? Because they are more convenient, and *fatigue less*. What would you say to a cricketer, boatman, or coalwhipper, who prepared for work by putting on a stock, a coat buttoned up to the chin, and concluded his equipment by squeezing a hat on his temples? I speak only of out-door pursuits. There are times for dress, and then dress as carefully as you will.

Well, I put on my wide-awake to visit my chickens. The wind "pinged" as I turned from the shrubbery, and when I reached my yard there was not a chicken visible. The warmth of the fire and the effect of the breakfast were disappearing from my frame; and as the cold came, so did the ill-temper. I felt that I should soon be in a humour to quarrel with anything. Fortunately no one came in my way; and just then I thought of the old lady, who, one snowing and freezing Sunday, when her carriage-horses could not get out, issued from a warm cosy chapel-of-ease, wrapped in furs and velvets. The snow was inches deep; and the chill struck to her feet, penetrated her clothes, pierced her veil, and made her shiver. A lean, pale young woman came up to her. She was shoeless, and barely covered with threadbare clothing.

"Do pray give me something, ma'am; I am so cold."

It made the old lady colder to see her. "Dreadful! Give this poor creature five shillings," said she, turning to her servant.

"Haven't got so much," answered the servant.

Exercise began to warm the old lady: she did not feel the cold so much for herself or the beggar. "Give her half-a-crown."

"Haven't got it, ma'am,"

The old lady was now in a glow. "Give this tiresome woman a shilling."

"Haven't got one, ma'am."

Not only was our old friend warm, but she was in sight of home, and could see the glare of a roaring fire: she was not cold at all. "Give that beggar sixpence and send her away."

"Haven't got one, ma'am."

She did not have to wait at the door. Her coming had been watched: it flew open, and in ten minutes she was undressed and seated at an ample luncheon in her warm room. When she had finished she went to the window: there stood the woman, looking colder and more wan than ever. The old lady frowned at her, and said something about worthless creatures—"Serve them right." Still there stood the beggar. She rang the bell, which was instantly answered. "If that creature does not go away, seek a policeman and give her in charge."

Just as I had an angry speech ready for my man when he should appear I thought of this anecdote, and determined to meet him mildly, as it must be colder for him than for me.

"I want," said I, "to look over the early chickens, as I must make some entries for summer Shows."

My man is an excellent servant, but he likes to grumble. "Bad day to see them, sir; bad weather for them; don't look well, sir—don't grow a bit."

"Well, never mind; let us choose the best."

"Not for me to say, sir; but don't think it a good plan to keep picking the best so early in the season. It does away with our chance at the great winter Shows; and if any one comes, our best are always gone. It is very discouraging to me always to have my best taken away."

"But," said I, "they won't go away till June; and then, perhaps, they may come back again."

"They never do, sir; and my chickens win in other people's names afterwards."

I was happy to see the east wind affected others as much as myself. "Never mind," said I, "let us see what we have got. Where are they?"

"Oh! in shelter somewhere."

I went into another yard where there was a long shed, and in a small orchard close by, two small hayricks. There were my chickens, some under the ricks, and some huddled together in the shed. If one came out, the wind curled up all its feathers, and gave it the appearance of a Frizzled fowl. "They do look very badly," said I.

"Don't think so, sir?" answered my man. "Look at the weather. I'll get them together, and I know nobody has a better lot. There are twenty, all hatched in January, and you cannot tell one from the other. They are the best I ever had."

He fetched a bowlful of oatmeal and water, and called them to him. They were a fine lot; but, as fast as they filled their crops, they returned to their shelter.

"It's no use," said my man, "and it ain't fair to look at chickens when the wind's in the east."

I quite agreed with him, and vented my spite on any one who may be disposed to read this, by committing it to paper. They will, probably, read it, if they do at all, when the wind has changed. I will, therefore, give them the result of my after-visit, to see what my man termed *his* chickens.

What a change! There had been a slight shower, the dust was laid, the sun was now out, the wind was a "sou'-wester," the birds were singing. Trees, flowers, and chickens, all seemed to enjoy it; and my man too. He was better.

"My chickens are all right now, sir; look so well, and as big again as they were a week ago. No end of winners among them."

"Where are they?"

"Oh! all over the place; but I have not fed them to-day on purpose. I will soon get them together."

The orchard, where they ran, had a high bank all round it, and on one side a dry ditch. There were few chickens in sight; but when called, they ran from all directions. The banks and ditch were alive with them. They did look well; and when I saw them together, I fancied there were lots of prize-takers.

Now, let us see the result. Most of them were three months old, and, at that age, I fancy I can draft all but my Spanish. I do not mean to say I am not sometimes wrong; but, as a rule, I find it profitable. My man does not approve of having his chickens pulled about.

"There, sir," said he, "there is a cock, here a pullet, there another, and there two more. I should like to see the birds that would beat *them*."

I had never yet dared to have the close inspection I wanted; but I determined, this year, to have my own way.

"Feed them all into the house, and shut them in." His face fell.

"I don't think I can."

"Well, we will try."

All his alacrity vanished, but he was obliged to drive them in. "Now, said I, "we will catch every one, take them to the light, and put the faulty ones aside."

"Don't think you will find one?"

"Hope not."

"Catch that young Cochin cock."

"No occasion, sir; he is such a beauty, I know him."

"Never mind; catch him."

"Why, he is crooked," said I.

"Not crooked, sir; but not quite straight."

"Well, he must be set aside."

"What for?"

"For feeding. I am determined not to keep any more faulty birds. You know, at Worcester last year we had the best pen but for such an accident as you call it as this."

"It is very discouraging," said my man, "to have one's best chickens drafted in this way."

I found no answer would be best, and, therefore, caught up a smart, pretty pullet.

"Ah! her comb falls over already; put her with the cock."

"She, sir!" screamed he, "she is my best; look at her colour, see how she is feathered, and what fluff!"

He stood with her in his hand for some time, and, at last, reluctantly put her aside.

"Here; here is another; she is clean-legged."

"Not quite, I think."

"You know you lost first at the Crystal Palace by an almost clean-legged pullet."

"But she would do well to breed from."

"Not so; all these may be traced to the birds I kept at your

desire last year. For the future, I will only keep and breed from perfect birds."

To be short, I found only seven of the twenty up to exhibition mark, and I am sure, I shall have winners among them.

I have good reason for what I did, and as mine is all experience, I will detail the results. All breeders know that a bird faulty in one particular almost always makes amends by super-excellence in some other point. In our time we have had single-combed Sebrights of marvellous lacing, colour, and markings. Hamburgs, with the same defect, perfect in every beauty. Spotless hackles, pencilled in body and tail, and breasts that left nothing to desire. Cochins, with charming heads and combs, purest lemon colour, stainless hackle, no tail, ample silky fluff, but clean-legged. Dorkings, of marvellous size and symmetry—*only* they were four-clawed. Spanish, with such faces, but bad combs. Polands, with top-knots like exaggerated caniflowers, just a little hump-backed. We have bred from all, and our experience is, that defects are more certain to be hereditary than merits.

BEVERLEY POULTRY SHOW.

We think it well to remind our readers, that the first of our Summer Poultry Exhibitions is fast drawing nigh: it will take place at Beverley, Yorkshire. The excellent management of last year will, doubtless, render the coming meeting even more popular than the preceding one. Supported as it is by most of the leading men in the county, and superintended by parties well versed in all the requirements of a Poultry Show, Beverley has peculiar advantages; whilst prize-taking at the early Shows, most amateurs will readily admit, has great influence on the sales of stock during the whole after-season.

In the general classes the prizes are 30s. and 15s.; and in Game fowls a third prize is also added. A silver medal will be given to the best pen of either Black or White Bantams; besides which, there are separate prizes for Single Cocks of each variety, even to Bantams—the latter being a new feature at Poultry Shows, but one much needed; affording, as it does, the opportunity of introducing fresh blood at a trifling outlay. The Turkeys and Geese have each three prizes allotted to them; but, we fear, a more unfavourable time of the year could scarcely be named for exhibition in these two particular classes. A sweep-stakes for Single Game Cocks will take place; the amount of prizes depending on the subscriptions at 5s. each bird. This sum, whatever it may prove, will be divided into four prizes, after deducting five per cent. towards the expenses of the Exhibition. There will be prizes, also, for "extra stock of any kind," which will, no doubt, cause many interesting entries. The Society's silver medal will be awarded to the best pen of Black-breasted Red Game fowls; also, to the best pen of Black or White Bantams exhibited. Again, to the best Bantam cock of any variety or colour; also, to the best pen of Jacobin, Fantail, or Trumpeter Pigeons. The Pigeon classes, generally, have each two prizes—10s. and 5s.

The show of Rabbits is expected to be very good—eight prizes being offered to secure weighty competition. By the regulations, every member of the Executive Committee, as also the Honorary Secretary, pledge themselves neither directly nor indirectly to compete for prizes. It is impossible to suggest greater disinterestedness than this; and it appears to carry much weight among Yorkshire amateurs.

The instant destruction of every egg laid in the Exhibition will be scrupulously enforced; nor will diseased birds of any kind be admitted. During the time the Judges are awarding the prizes, neither "feeders" nor any other persons will have access to the building under any pretence whatever.

With laws so exact, combined with the very excellent arrangements carried out last year, most probably this Show will prove a very successful one.

DUCKS' EGGS UNPRODUCTIVE.

"I HAVE three fine Rouen ducks, two ducks and a drake, the largest I ever saw. Last year the ducks laid a vast number of soft eggs without any hard shell about them; and out of those she sat upon (which are all hard-shelled eggs), only three contained ducks. This year both ducks have laid; one thirteen, and the other eleven eggs—all full-sized and firm shells. They have sat particularly well, and have been well and regularly fed

upon oats and barley, &c.; but again, out of the thirteen eggs only two contain ducks, and the rest have all yolks, but nothing like the embryo ducklings. What can be the cause? The drake is a magnificent bird; and they have a nice large pond in which they delight to swim. Can you assist me to discover the reason for this failure?"—A DUCK FANCIER.

[We have not the least doubt the unproductive eggs were chilled. It is fair to expect in every sitting some will prove bad—it always is the case; but where eggs are all laid by the same birds, it cannot be that only two out of thirteen should be fecund. You need not be discouraged, as the changeable weather and severe frosts of the last three weeks give an easy explanation of any failure. When an egg is chilled, the white becomes clouded, and there is a trifling mixture of the yolk with it, which precludes any possibility of hatching.]

BEE-KEEPING IN DEVON.—No. IX.

TABLE OF WEIGHTS—DIMINUTION IN WINTER—EFFECT OF POPULATION ON CONSUMPTION—SINGULAR CONSTRUCTION OF COMBS—PROBABLE PLURALITY OF QUEENS—BEE-KEEPING WITHOUT BEEHIVES—SUCCESSFUL EXPERIMENT—COUNTING THE COST—POLLEN NOT FOOD FOR ADULT BEES—NEW MODE OF SPRING FEEDING.

IN resuming my sketches of apiarian proceedings, I would repeat that I shall be happy to reply to any inquiries from the correspondents of THE COTTAGE GARDENER, and that the Editor is welcome to give my name and address to any gentleman who may be interested in Devonshire bee-keeping; whilst it may not be amiss to remind the readers of THE COTTAGE GARDENER that my apiary now consists of four stocks; three of them being swarms of last year, and the fourth formed by uniting the driven populations of four straw hives. These I shall briefly describe, and designate as before Nos. 1, 2, 3, and 4.

No. 1 (8-bar dividing hive) has a queen probably two years old, and the population was doubled last autumn.

No. 2 (7-bar hive), age of queen uncertain—not doubled.

No. 3 (8-bar hive), supposed to have an old queen—doubled population.

No. 4 (7-bar hive) contains the expatriated inhabitants of four straw stocks.

The following table gives the net weights in each case from the 7th January to the present time:—

Date.	No. 1. lbs. ozs.	No. 2. lbs. ozs.	No. 3. lbs. ozs.	No. 4. lbs. ozs.
Jan. 7	15 10	14 2	16 6	10 14
Feb. 3	14 8	13 4	15 2	9 4
" 22	13 14	12 12	14 8	8 14
Mar. 14	13 10	12 8	13 12	9 10
" 24	13 8	11 2	13 0	9 8
April 4	15 2	12 10	15 6	12 8
" 21	13 0	9 14	13 8	10 4

By reference to the tables of weights formerly given it may be seen that, from Oct. 2, when the autumnal feeding of No. 4 was concluded, to Feb. 22, when spring feeding had commenced, the loss of weight was as follows:—No. 1 lost 5 lbs. 14 ozs.; No. 2, 5 lbs. 12 ozs.; No. 3, 6 lbs. 8 ozs.; and No. 4, 7 lbs. 2 ozs. It would appear, therefore, that whilst numbers have some effect in increasing consumption, that effect is not nearly so great as might be expected; since No. 4, with a quadrupled population, only lost 1 lb. 6 ozs. more than the single colony No. 2. It will also be perceived that all the hives gained considerably in weight during the genial weather with which we were favoured at the commencement of this month (April); which increase has, however, pretty nearly disappeared during the late wet weather and cold winds.

Mr. S. B. Fox, in his interesting "Apiarian Notes," has alluded to the singular manner in which the bees commenced comb-building in No. 4, constructing nearly full combs at the sides of their box, but leaving only half combs in the centre. It appears not improbable that this peculiarity may have arisen from the existence of two queens; for, at any rate, some days after the operation of transferring had been completed, and the bees, having formed separate clusters round each sovereign, would seem to have begun two distinct sets of comb, which gradually approximated, and ultimately united in the centre of the box. Supposing this theory to be correct, the circumstance reminds me of a peculiar system of bee-keeping, which obtains in some parts of America, and which consists of appropriating an entire room to the bees, which build combs and form distant colonies in the same apartment without using either hives or boxes. I have

never been able to learn any authentic details of this mode of management, which is, I believe, quite unknown in England, and should be glad if any of the readers of THE COTTAGE GARDENER could enlighten me on the subject.

The experiment of forming a colony of deprived bees, and keeping them alive during winter by a copious supply of artificial food, has proved quite successful. Very few deaths have taken place, and comb-building having been resumed in March, the stock at this time presents much the appearance of a strong swarm, which, having furnished its hive with comb, is now waiting more genial weather to enable it to store a goodly quantity of honey. As I gave it 12 lbs. of lump sugar in the autumn, and 2 lbs. more in the spring, flavoured in each case with a certain portion of honey, its cost may be set down as follows:—

	s.	d.
14 lbs. lump sugar, at 6d.....	7	0
Honey and barley sugar (say)	3	0
Total	10	0

If to this be added the expense of my trips to the heath to procure the bees, and to look after them whilst there, it may be considered rather a costly stock; but as this expense would appear to have been in no wise necessary to the success of the experiment, I am content to leave it out of the calculation, and deem myself repaid by the enjoyment of the trips themselves, as well as the pleasure of relating my adventures in the pages of THE COTTAGE GARDENER.

The success of this experiment after the failure of repeated attempts of a similar nature with fumigated bees, appears to me conclusive as to the superiority of "driving" over "fumigation," for transferring stocks. It also demonstrates the fact, that *pollen does not form a portion of the food of adult bees*, but that GUNDLACH is probably right in thinking that "they only swallow it in order, by mixing it with honey and water, to prepare the liquid food for the grubs." There is no doubt, however, that bees do "swallow" pollen, and I had ocular demonstration of this fact on the 10th of April, when I saw a bee on the alighting board of one of my hives eat the pollen from the thighs of another bee, which remained quite still whilst the load on one thigh was entirely cleared, and the other about half eaten.

The feeding of bees in early spring is sometimes a troublesome business, from their unwillingness to ascend into a feeding-pan placed on the top, which has also the disadvantage of robbing the hive of a certain quantity of heat, which, at this time, can be but ill spared. I have for some years fed bees in spring by means of a glass syringe,—such as can be procured at any chemist's for a shilling,—with which I have injected food into the hive itself through the opening in the top, which is momentarily uncovered to such an extent as just to admit the point of the syringe. This should only be done in the middle of a fine day, when the bees are active, and generally one syringe per diem will be found sufficient. In order to meet possible objections, I may state, that, in practice, very few bees are soiled by the food in its passage between the combs to the floor-board (which should, of course, be a clean one), and that these few are speedily cleaned by their companions. Before adopting this method, I have saved a hive in a desperate condition by inverting it, and pouring a pound of food between the combs as advised by Mr. Golding in his "Shilling Bee Book."

By the means now recommended, I have, however, carried the most destitute hives through late springs on sugar and water only, with very little trouble, and no risk either to myself or the bees; and, therefore, recommend it to the attention of apiarists generally, as having been successfully used by—A DEVONSHIRE BEE-KEEPER.

OUR LETTER BOX.

COCK BLIND FROM FIGHTING.—"I have a very valuable Golden-pencilled Hamburg cock, which, unfortunately, had a fight with another about three weeks ago, and since which time he has been totally blind, though there does not seem to be anything the matter with his eyes. He keeps them wide open, and nobody would think him blind unless told so. I applied to a 'cock doctor' in this town, who advised me to put a little powdered loaf sugar into his eye every morning. I followed that plan for a week, but I am sorry to say he is no better."—JAMES NICHOLS, JUN.

[There is evidently a pressure upon the brain affecting the optic nerve; the result of blows or over-exertion in the fray. Bathe the head frequently with cold water; bleed freely from one of the veins under the wing; give soft food only; give a dessert-spoonful of castor oil twice a-week, and keep the bird quite cool and quiet. Oblige us by informing us of the result.]

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	MAY 10—16, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon R. and S.	Moon's Age.	Clock after Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
10	Tu	<i>Struthiola ovata.</i>	30.070—30.022	66—36	E.	—	18 af 4	34 af 7	43 1	8	3 47	130
11	W	<i>Symplocos sericea.</i>	29.984—29.846	65—34	N.E.	—	17 4	35 7	58 1	9	3 49	131
12	Th	<i>Tetradlea hirsuta.</i>	29.743—29.694	64—30	N.	.12	15 4	37 7	12 2	10	3 51	132
13	F	<i>Tenerium abutiloides.</i>	29.717—29.642	67—38	N.W.	.08	14 4	39 7	24 2	11	3 52	133
14	S	<i>Trichonema cælestinum.</i>	29.710—29.450	67—44	S.	.18	12 4	40 7	38 2	12	3 53	134
15	SUN	3 SUNDAY AFTER EASTER.	29.429—29.379	64—47	S.W.	.10	11 4	42 7	54 2	13	3 53	135
16	M	<i>Triomphe de Gand.</i>	29.890—29.543	66—47	S.W.	.14	9 4	43 7	rises.	⊙	3 53	136

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 63.7° and 40.9°, respectively. The greatest heat, 86°, occurred on the 15th, in 1833; and the lowest cold, 25°, on the 15th, in 1850. During the period 129 days were fine, and on 85 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

A FREE ventilation is of importance, and by closing with a humid atmosphere early in the evening a vigorous growth will be promoted. Liberal shifts to be given to such plants as may now require them, before their roots become matted. Remove all plants intended for bedding out, and let them remain for a short time under the protection of a cold frame, or in beds hooped over, and covered at night with mats, or other such protecting materials. This gradually-hardening-off will better enable them to withstand unfavourable weather, if it should occur after they are planted out.

AZALEAS.—All irregularities of growth should be corrected by pruning. We have lately seen the beneficial effects of close pruning on such plants; they had been cut in severely last season by removing strong, straggling branches of old wood, to give some a spherical and others a pyramidal form. When pruned, the ball was reduced, the plant fresh potted in a smaller-sized pot, and the peat soil rammed as hard as it was possible to make it; then watered, and introduced to heat. The plants treated in that manner are now covered with bloom, and in a high state of vigour.

HEATHS.—Keep the tops pinched off, to form bushy plants.

NEW HOLLAND PLANTS.—Some of them of weak growth, and which naturally make long, straggling shoots, are much improved by bending down the branches, and fixing them to a wire hoop, or string attached to the rim of the pot. By such means the nakedness of the plant at its base is hidden, and the check imposed on the ascent of the sap will induce an increased supply of shoots. Pick off the seed-pods as the plants go out of bloom. Cut back and arrange the shoots in the best manner, to produce compact growth.

PELARGONIUMS.—All that are showing bloom, unless of very gross habit, will receive benefit from a supply of a little weak manure water. For that purpose put cow, horse, or sheepdung into a tub, and to one peck add five gallons of rain or other soft water. When taking it for use draw it off clear, and give the plants a watering twice a week. Give air freely, shut up early, and syringe the plants overhead till the flowers expand, when syringing should be discontinued. As the petals are apt to drop very soon in hot weather, it is recommended to touch the centre of the flower with a camel-hair pencil, or small feather, dipped in gum water, which will stick the petals together and prolong the blooming. Such is the general practice at our metropolitan exhibitions.

STOVE AND ORCHID-HOUSE.

As the stove plants grow, allow them more space, especially such plants as are prized for the beauty of their foliage. Give frequent attention to stopping and training. Look to the climbers frequently, to regulate their growth and to prevent entanglement, and a world of trouble and confusion. Put in cuttings of such plants as

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Brugmansias, Clerodendrons, Eranthemums, Erythrinas, Poinsettias, and those winter-flowering plants *Euphorbia jaquiniflora* and the *Gesnera bulbosa*. Where there is only one house in which to grow Orchids, a compromise as to temperature must be made to suit the natives of the hot and moist valleys or shady woods of the East, and those which inhabit high and airy regions in the Western hemisphere. To accomplish this it is advisable to allow a free circulation of air during the early part of the day, with an abundance of atmospheric moisture, and to shut up early in the afternoon with a high degree of temperature.

ACHIMENES.—They delight in a moist heat, and a partially-shaded situation. More air to be given as they advance in growth. The shoots to be staked out neatly.

GESNERAS to be treated similarly, with the addition of more light.

GLOXINIAS.—The same as *Achimenes*.

FORCING-HOUSES.

CHERRIES.—Give more air, and keep a drier atmosphere when the fruit is ripening. Give plenty of water to the trees swelling their fruit. Keep them free from insects, or the fruit will be of little value.

FIGS.—Air freely, to give flavour to the fruit now ripening. Avoid wetting the fruit when it begins to soften.

MELONS.—Keep up the heat of the beds by renewing or turning the linings. Slightly shade the plants when the sun is powerful, to keep the foliage in a healthy state, without which good fruit cannot be produced. When the frames are at liberty, Melons may be grown in them with a little assistance from dung heat at bottom.

PEACHES.—Give a liberal supply of air, with less water, to trees, the fruit of which are ripening.

PINES.—Continue the previous instructions in the management of the plants in the different stages of growth.

VINES.—Thin and stop the shoots, and thin the berries in good time. Attend to the late crops, and set, by hand, the blossoms of *Muscats*, *West's St. Peter's*, and other shy setters. Be sure that inside borders are properly supplied with water, giving sufficient quantities to thoroughly moisten the whole mass of soil.

WILLIAM KEANE.

SPERGULA PILOSA AS A SUBSTITUTE FOR GRASS—ACCLIMATISING PLANTS—MR. MONGREDIEN'S GARDEN.

THE day after the horticultural anniversary I had an engagement to see Sir Joseph Paxton's new portable houses in his own garden; but the elections interfered, and I did not see Sir Joseph. I saw enough, however, to make up for the dry shells and husks of the previous day; and having a standing invitation from the Crystal Palace people to call in and take pot luck whenever I was passing, I was in time for the pudding. But once on the rail, I thought the best thing would be first to see the

new "Grass that never wants mowing" at Forest Hill; for everybody has been teasing me to know what it is, or is to come to, ever since the Messrs. Henderson, of the Wellington Road Nursery, advertised seeds of it.

I never heard of such a plant before. The name is not in my library; and the library of the Horticultural was sold on purpose to cut the ground from under your humble servant, and to pay for turfing over the graves of the Council, who spent three thousand pounds of our free-will offering to rid the Society of debt, and put on our debt a thousand and odd more besides in less than three years, and had nothing to show for it. Therefore, without seeing the "new Grass" as it is represented, what could I say?

Well, I have seen it, and I have seen a great deal more in the same place, which was equally new to me; but what between the honourable member for Coventry, the pudding at the Palace, this *Spergula pilosa*, and the said novelties, I should need to have a spinning machine to get out all my yarn before the Shows are in. Therefore, lest I break down before the end, I had better give my impression of the "new Grass" before I begin in earnest.

I am not long in deciding on a thing of this kind, and am often put down as being too sanguine in these matters; but it is seldom indeed that things go different, or very different, from what I say. I say, then, of this lawn plant, that *it is destined to make a revolution in gardening*; that it is a discovery next to that of gas, steam, and electricity for gardening; that every lawn in England, Ireland, and Scotland may be made with it as smooth, and soft, and comfortable to walk on as any carpet in Her Majesty's drawing-rooms; and that it never wants a scythe or a mowing machine. The best lawns and the best carpets have worn out, hitherto, by time and usage, and so will this grass; but, of all the things on the face of this earth, it is the easiest thing to "make up," and to look as well as it did before. It will require the highest style of gardening, and it will teach this nation how gardening should be done. One of our best exhibitor-gardeners has pledged his credit, in my hands, on the point that he would willingly undertake, in one season, to cover every inch of ground which is under the scythe at the Crystal Palace with this new grass. I would add, if that be so, I think I should be safe to step in and ensure the bank between the Palace and the first terrace-walk all round from burning half so much as it did last year; for I think I know something of this plant. I think it is a Scotch plant. I think it was never introduced; and I think they have given it a wrong name, or changed the old one. But, as I have just said, I am not practical enough to be quite sure without referring to a good library. (Bad luck to the *Fandal suavis* who sold our library to cover their blundering experiments.)

I am all but certain that this *Spergula pilosa* is the old *Spergula saginoides* of Scotland. The moment I saw the lawn at Forest Hill I told the proprietor and his gardener that I thought I had used the same plant years back, and that I wrote something about it as the "carpet plant," and I thought in *THE COTTAGE GARDENER*. That, however, is neither here nor there. The grand point is, that this *Spergula* is the best lawn plant for this climate; that it will form a close, even, and shining lawn which will never want mowing. A large piece of lawn, nine yards by eight yards, is already formed of it at Forest Hill; and two larger pieces of lawn, each thirty yards by sixteen yards, are now in the course of being covered with it; and ultimately every inch of the lawn all over the garden is to be covered with it, and with nothing else.

No one can conceive the beauty of it without seeing it. The nap on the finest velvet is not more soft or more uniform; and there is a gloss all over the surface like that on the back of a mole. The garden where this has been proved is as steep as any on the side of the Malvern Hills, and is of the strongest red clay; but the *Spergula* takes hold of the gravel walks just as readily as of this

clay. It is like a mulching over the clay, which never allows the clay to crack before the summer ever so hot.

The history of it is this. The proprietor, A. Mongredien, Esq., is a practical botanist; and to indulge in his favourite pursuit he has formed the most unique rock garden in the three kingdoms, at the foot of the slope, facing the north, for the growth of the fairest and scarcest cryptogamic plants in the British flora, from the tiniest Ferns, through *Lycopodium*, *Sphagnum*, *Phascum*, *Gymnostomum*, *Hymenostomum*, *Trichostomum*, *Dicranum*, *Tortula*, *Bryum*, *Polystichum*, *Hypnum*, *Jungermannia*, *Marchantia*, and their extensive allies; also for British orchids, and the minutest and rarest alpine plants. Among the last, *Spergula pilosa*, as it is called, made its appearance; and increased so fast, and showed such delicate proportions, and such an inclination not to be kept within the limits of its due portion of the rockwork, that it seemed selfish to destroy so much of it without allowing kindred spirits to partake of the same pleasure and amusement. Patches of it were set in better soil, and better returns were made by it; till at last, from patchwork to a whole quilt, and from that to a full-stretched carpet, which you have just heard of, were made with ease and pleasure.

Then it occurred to the proprietor that his gardener, with whom he is well pleased, might make something of it for his own use and benefit, to compensate for the extra hours, days, and interest, he spent on the collection. The man saw the notes of his master's tune, and had the good sense to learn how to whistle it. Such men never pay dear for their whistle; and Mr. Summers, the head gardener here, had the satisfaction to learn that he whistled to some purpose. He took up the suggestion, gathered the crop of seed, told his tale, and offered his crop to the enterprising firm of the Wellington Road Nursery; and you know the rest from that point.

But some of the great firms in the seed trade about London would not, or could not, believe in such marvels: they must see for themselves. They did see, and were convinced that a tithe of the "properties" of this plant was not given. "But *THE COTTAGE GARDENER* is our only practical guide in such matters, and we must wait for an independent opinion." Well, gentlemen, you have it now; and you may tell it over the length and breadth of the land to-morrow. But the grand secret is yet to come.

How is the thing to be done? What is to be the fate of the seedlings? How many acres of lawn will they cover, and how soon? And what next? and next? The answers to every one of these questions, and to as many more on the same interesting subject, are in book: but without the spinning machine it is not reasonable to expect one man ever to get to the end, or bottom, of the story with so many other irons in the fire. Suffice it to say for one week, that Mr. Summers has undertaken the responsibility of supplying the three kingdoms with plants sufficient to set the plant on foot, through the Messrs. Henderson, of the Wellington Road Nursery; that he has rented a greenhouse, and so much ground for that purpose, and engaged a managing foreman to propagate the plant by the thousand and tens of thousands; that the concern will be called the *Spergula* Nursery; that he will, or could, undertake to cover the whole of the Crystal Palace grounds with this plant in one season; but for the present, and to such a period, applications for it must be made through the Wellington Road Nursery.

As this is the first time I had seen the proprietor, or his gardener, if anything I have stated is not as it stands I am always at home to eat my own words with respect to facts; but my opinions I never change without proof positive. And those on the merits of *Spergula pilosa* must be proved a second time under my own eye in the Experimental Garden. I have made arrangements for that proof already.

The rest of the garden, the plants, and the hothouses,

are a study even to an old gardener. I said it is as steep as the Malvern Hill gardens, or those on the sides of the Calton Hill in Edinburgh. It is also as high and as much exposed as the garden-front of the Crystal Palace, it faces directly with the north pole, and has the strougest clay bottom; but the beds and borders were made as practical gardeners could wish. One large bed, in the centre of the slope, is devoted to Experimental acclimatising foreign plants. One hundred and fifty loads of clay were dug out of it, and thirty loads of brick rubbish put in for drainage; then Wimbledon peat, and a little yellow mixed loam at top. The result surprised me more than anything I ever saw about London. The *Eugenia Ugni*, as a bush plant in this bed, produced the best coloured berries that were exhibited last autumn. None of the plants are the least protected in winter. *Eurybia Gunneana*, a shrubby white-flowering Aster, in one mass of bloom; *Quercus glabra*, an evergreen broad-leaved Oak, as a bushy shrub, as free and healthy as a Laurel; *Wellingtonia gigantea*, quite healthy; *Olea fragrans*, the same; *Chamaecyparis glauca*, quite at home; *Mitraria coccinea*, half dead; *Cunninghamia lanceolata*, quite healthy; *Pittosporum Tobira*, the same; *Sarcococca pruniformis*, dwarf Laurel-like plant; a fine *Swammerdamia antennaria*, *Clethra tomentosa*, *Griolinea litoralis*, an immense bush of living evergreen, one of Mr. Veitch's new things, looking like a Bridgesia; *Adenocarpus intermedius*, a large bush, with yellow Pea blossoms, which blooms all the summer and autumn till stopped by frost. Mr. Summers recommends this yellow shrub, with the white *Zieria macrophylla*, which blooms all the spring in the greenhouse, and the whole of the summer and autumn out of doors; together with the three *Diplacuses*, *glutinosus*, *punicus*, and *grandiflorus*, as a group of soft, shrubby plants, which would tell well in a bedding system—a capital and original hint.

In the same Experimental bed was a large and most healthy plant of *Grevillea rosmarinifolia*, sweeping the ground for four or five feet in diameter, and in bloom all this winter. Also, *Lomatia longifolia*, six or seven feet high, blooming and seeding, and the seedlings up in all directions round it, proving it to be the hardiest of the New Holland Proteads. It looks like a narrow-leaved Banksia. All these have stood out four or five years, or more, but elsewhere are generally kept in-doors in winter. The *Indigofera decora* dies down every year like a Fuchsia, and up again, strong as ever, blooms most beautifully, and is cut again, and so on. Tea plants and Camellias as healthy as with Milne, Arnott, and Co., quite exposed to the coldest blast. Broad-leaved and two kinds of narrow-leaved Myrtles just the same. *Glyptobotrys heterophylla*, a Conifer from China or Japan in 1850, as healthy as a Cryptomeria, and produced cones last season; a rare thing. *Ceanothus papillosus* in the most robust health, and literally swarmed with bloom-buds all over a large, close-growing shrub of it, six feet by eight feet, in the open border. *C. divaricatus*, of course much more hardy. *Deeringia Amherstii*, looking like some strong Cornus; but it is a rare, hardy Ameranth, and there is a most beautifully-variegated form of it, equally hardy, in this garden, which will be exhibited, from here, probably for the first time. I got the secret of doing it for exhibition, but have not room to hold it to-day. *Elaeagnus reflexa*, a beautiful and very rare hardy shrub, looking like a Banisteria; Conifers, Rhododendrons, hardy Climbers, and many more interesting plants, crowd me here; but I must edge off with the best *Wellingtonia*, which was bought at one guinea the inch. It is now exactly five feet high, less one half inch. Crinoline to just touch the end of the branches would need to be nine feet three inches round, and the stem is ten inches round at the surface of the ground. The growth last year was two feet full, say a little over. There is not a *Wellingtonia* in Europe more fully exposed.

On the very crown of the hill, above the sloping

pleasure-ground, stands a block of plant-houses, built on an excellent plan for the growth of plants, and for the economy of heating. Three wide spans, that in the centre is devoted to Ferns, Orchids, Water Lilies, stove, and fine-foliaged plants. The divisions back and front are of glass down to the path. On the north side is a very wide New Holland-house, the "back wall" of which is one of the said glass divisions. On the other side of the centre stands the intermediate-house or stove, with one part of it divided off for Cactus, in all its sections, Mesembryanthemums, and other succuleuts. All the plants look in the very best health. Many of them are exhibition plants, and took first and second prizes. The secret of part of the success, and part of the good looks, is in the fact that the side or "bottom air" must come through wide houses on either side of the centre house, and be "qualified" before it can reach the plants; and the current is such, that "top air" is seldom needed till fires are unnecessary. I noted the kinds, and the mode of treating the best-looking plants in all these ranges; but I must keep them till I see how the prizes go, for fear of letting the cat out of the bag unwittingly, and take a turn into a splendid sight—a full standing orchard-house, at full play, and loaded in every part with the most promising crops. Never let me hear another word against orchard-houses. If you could see the *Muscat* Grapes in pots in this house on the top of Forest Hill, my word for it, you would act like the man who used to boast of his plants on "the leads," which he refreshed once a week from Covent Garden, till his neighbour, the head of the police at the Chiswick Shows, got him to go down there and see what the real gardeners did do; and when he saw it he was ready to tear his hair out by the roots, and vowed he would go home, break all his pots, and never again make such a fool of himself.

If Mr. Summers do not beat Mr. Drewitt this year with these *Muscats* it will be surprising to me. His Peaches, Apricots, and Nectarines, are most beautiful and regular crops. The plants could not be more healthy. He does not allow a single root to escape into the border, as that would entail the destruction of the best feeders, and the bother of fresh potting. Pears do not set so well as stone fruit; but, once set, they go on well afterwards. The best remedy for this difficult setting is to keep the Pear-tree pots out till the bloom is in danger of frost.

Bedding plants grow abundantly between the fruit trees, and Strawberries all round the sides, next the lights and ventilation. The division for Grapes has a bed in the centre for Cucumbers; and it was from this division that the remarkable pot of Cucumbers came which I mentioned as taking the first prize at the Crystal Palace last autumn. There were thirty-three Cucumbers on that plant at the Show, and five of them averaged two feet each. Some of the *Muscats* now thinned ought to swell to 4lbs. or 5lbs. a bunch. Five bunches of the average of Grapes are reckoned a poor crop; seven bunches a good crop; and eight ditto a large crop. The first prize for pot Grapes was also for fruit from this house.

The secret is to fruit only the five, six, seven, or eight top buds on a shoot, according to the strength of the roots. One plan is to make them in standards, with the fruiting buds in a coil—parasol fashion on the top; the other is to coil into the pot the disbudded lower part of the shoots, and so bring down the bearers, which then make a fruiting pillar for the dessert-table. D. BEATON.

LOOKING AROUND US.

SHRUBBY CALCEOLARIAS.

Those intended to be grown in pots should receive their last potting by the beginning of May. The earliest lot will now be in bloom. Light rich soil suits them when young. A little rotten dung and good loam are

best for the last shift, so as to keep the plants stubby. A cool airy position for the pots is desirable. When the pots are filled with roots, the tops of the plants will find no fault with the sun, but the roots close to a hot pot will do so, and more especially if at all dry. The least want of water will soon cause them to suffer; and so will stagnant water. The plants intended for beds should either go out at once, or, if in pots, be plunged to keep the roots cool. It is not now worth while to plant out young plants in intermediate beds, to be protected when necessary. When that is done in March, the plants are generally very healthy and stand well during the season. If the plants stand about in small pots, and get frequently dried and flagged in the sun in April and May before planting, they often go off in summer, without hardly assigning or showing you a reason. Half of the failures in Calceolaria beds I should be inclined to ascribe to extra coddling, and checks by heat and dryness at the roots, before planting. In ordinary seasons, there is little chance of a bed giving way when the plants are thick enough to prevent the sun greatly heating and drying the soil. So long as the plants are thin in the bed, and the sun is powerful, the weather dry, and little water to give them, there will be a risk of some of the plants going. So long as the roots have fairly got hold, and there is plenty of moisture within their reach, the plants will not suffer from a bright sun. The black leprous-like spots which trouble many of us, and for which I have found no cure, are seldom seen when the young plants are kept from frost, but otherwise cool, airy, and moist, in winter and spring before planting. If these show fly, they should be smoked; but generally syringing with soot water will keep them clean.

CINERARIAS.

The earliest crops will have been turned out. In April, when the plants are past their best, if placed against a north fence, and covered with a mat, or a piece of calico, at night, they will furnish sprigs for nosegays for weeks, and give more room to plants opening their buds. There is always pleasure in anticipating beauty, but little in watching it on the wane. The last plants for the season will now want as much care as the Calceolarias, as respects coolness, and plenty of air, and freedom from insects. To have fine large specimens, the chief thing is to shift on, and have the last pot filled with roots by the time the flower-stems appear. The Cineraria is very manageable in this respect. Be the pot a three-inch or a ten, only let it be crammed with roots, and, ere long, up will come the flower-stems. Seeds should be saved from the best, and hybridisation attempted. Where time is precious, a good plan is to collect the best kinds together, and place the pots, or plunge them, so as to have a surface of fine soil. Under such circumstances the plants will hybridise each other, and the seed will drop and show itself in great plenty. When the plants are cut down and planted out, plenty of plants may be obtained in the shape of rooted suckers.

We spoke of the propriety of grouping plants, so as to enable you to give each group what little difference in treatment it required. Now, the same might be urged as to general effect. There you have a score of Cinerarias scattered about, all in bloom in your little house, and, of course, they look bright and pretty. Place them all in a group together, nicely arranged as to colour, height, &c., and then decide if the sight is not more than pretty.

CACTUSES.

Those not started early will now require water and all the sunlight possible. With the exception of hardly a drop of water in winter, the main features of general treatment, as respects moisture and sun heat, are similar to what was mentioned for the Oleander the other week. The Cactus, being succulent, will stand great dryness uninjured, except when in bloom, and in the heat of summer when making fresh growth.

Cytisus Alleana, *racemosus*, &c. These yellow plants make a house look lively. They will now want plenty of water; and the forced ones, and those not forced, when done flowering should be cleared of flowers and seeds, and pruned back as they require it, kept close for a little time, and then placed in a sheltered place out of doors, and have plenty of syringing all the summer. Weak soap and size water, now and then over the top, will do them good.

R. FISH.

A PEEP AT SOME OF THE LONDON NURSERIES.

(Continued from Vol. XXI., page 381.)

THESE metropolitan nurseries are, at all times of the year, full of objects of interest and instruction to a gardener from the country, be he young or old. They are generally in the hands of men of capital, who have the tact, not only of obtaining new plants and all the means and appliances to cultivate them, but also that of employing as foremen such men as possess the highest talent, both as propagators and growers of the multitudinous plants committed to their charge. Hence these nurseries are excellent schools for young gardeners. No one, indeed, should consider himself fully up to the mark in plant-culture till he has spent at least twelve months in one of these great emporiums of new and valuable plants. In such a school he may learn, if he has any quickness of perception, not only to increase plants in the best and quickest mode, but also how to grow a plant on to a perfect specimen.

These ideas passed through my mind as I walked through the plant-houses at Pine Apple Place, Messrs. A. HENDERSON & Co., where I spent, very happily, nearly ten years as foreman and traveller; so I can speak from experience of the benefit of nursery tuition.

Having indulged in the above digression, I now turn to my notes, which I took during my peep at the plants in this celebrated nursery. The show-house was full of gay flowers, chiefly forced. The Hyacinths were very fine as usual. However, my object in calling there was not so much to see flowers as variegated plants; and I was not disappointed, for I met with them in considerable numbers. I, of course, took notes; and shall briefly copy them out and describe the plants just as I dotted them down, so that any one desirous of growing them may know what to procure.

Maranta metallica.—This is a new species, of a compact low habit, with the midrib and veins beautifully silvered over. It is from tropical America, and well worthy of culture. Increased by division.

Aspidistra variegata.—A stove plant from Japan, with leaves springing from the rootstock. They have stalks a foot high; and are fifteen inches long and six inches wide; lance-shaped, tapering to a point. Ground colour a dark green, striped with pure white. The variegation is very irregular: in some leaves one side will be all white; on others, the white is regular in long lines. The variegation is most perfect when the plant is grown in very sandy soil. The flowers are very curious both in form and position: they only just peep out of the soil. It is a very useful exhibition plant, the variegation being so distinct. Increased by division.

Maranta eximia.—A beautiful distinct species, regularly striped across each leaf with whitish-green and dark green. The underside is a rich copper colour; form bluntly oval, ten inches long by five inches broad. Increased by division.

Solanum pseudo-capsicum variegatum.—A greenhouse-species from Madeira. Half shrubby. Leaves a long oval, irregularly margined with white. It has small white flowers, succeeded by round yellow berries. Should be increased by cuttings, in order to keep the variegation. Though not so showy as many variegated plants, yet, on

account of the variegation being so profuse and distinct, it is well worthy of a place in a collection. It thrives best in a moderately warm stove.

Begonia Griffithsii, var. *picta*.—A handsome medium-sized plant from South America. Leaves nearly round, and of a dark-green colour; with a zone in the middle of a greenish-white. The zone shows through the leaf. Underneath, the colour is crimson. Increased by cuttings; though there is little doubt it would increase by laying a leaf on sand in close heat, dividing it in many pieces in the same way that the beautiful *Begonias* raised from *Begonia rex* are increased.

Anæctochilus striatus, var. *pictus*.—A distinct lovely species, supposed to have been brought by Mr. Gibson from the Khosea Hills, India. It is a beautiful plant, with a distinct stripe of golden yellow down the centre of each leaf. Whoever has the means to grow *Anæctochilus* should procure this variety. It requires the same treatment as the rest of the genus. See former descriptions, and what I have to say about the tribe when describing what I saw at the next and last nursery I had a peep at—viz.:—

Messrs. VEITCH and SON, the Exotic Nursery, Chelsea. The collection of Orchids in this far-famed nursery, is, perhaps, unequalled in the world. There I saw, for the first time in bloom, the rare *Angræcum sesquipedalis*, with flowers seven inches across, and of a leathery substance, and a rich creamy-white colour. Also, a lovely new *Cattleya*, with deep purple sepals and petals, and a lip of a rich crimson colour. It is not named yet. The flowers are five inches in diameter. Also a new *Cypripedium*, with its foliage broadly striped with pure white. It was not in bloom.

Messrs. Veitch possess the greatest number of the lovely-foiled *Anæctochilus* I have ever yet seen. They grow them planted out in rows, under a two-light frame, in a hot stove, in a compost of sphagnum and very fibry peat, largely mixed with silver sand.

Besides the older sorts, I noted *Anæctochilus cordatus*, which seems to thrive the best of all in that frame. The leaves are more distinctly marked than *A. setaceus*, and even richer in metallic lustre.

A. El-Dorado, has lanceolate leaves, terminating in a point. Over the whole leaf there is a rich, reddish cast; which, together with the golden streaks, renders this a strikingly distinct species. It is new and rare even here.

A. Veitchii, has light green veins; the rest of the leaf is of a lustrous dark green. This is, also, new and rare. It is from Java.

A. Lobbi.—This species is in the way of *Veitchii* in colours; but has longer leaves, and, altogether, darker in hues.

A. Maulii.—Named after Mr. Maul, nurseryman at Bristol, who, I believe, imported it from India. It is in the way of *A. zanthophyllus*; but the broad stripe down the centre is much narrower, and, I think, more distinct.

I had some difficulty in withdrawing from these most beautiful and interesting plants; but night was approaching, and so I reluctantly left them to look after commoner things.

In the stove I found a plant named *Tradescantia odoratissima*; the origin of which, the foreman told me, nobody knew. It has purple leaves two feet long, growing in an arched form; the largest plant was quite a bush. The flowers are a rich blue and very fragrant. I noticed several young plants, and in that state the leaves are green.

Phrynium sanguineum.—This is a fine, large, showy plant, belonging to the Maranta tribe. The leaves are two feet long, purplish green on the upper side, and crimson purple underneath. The flowers are produced in dense spikes from the heart-shaped base of the strongest leaves, and are of a bright scarlet colour. It was growing in the large aquatic-house, and appeared to love the moisture of its habitation. Increased by suckers.

Dieffenbachia variegata.—The difference between this and its congener, *D. picta*, is, that whilst the latter is variegated with blotches of white, the former has feathered stripes of white on each side of the midrib. It is a handsome large-foliaged plant, worthy of cultivation. Increased by cuttings.

Yucca quadricolor.—The handsomest of all the variegated Yuccas. The leaves are long and drooping, and striped with red, yellow, white, and green. It is a green house shrub from America. Propagated, but slowly from side-shoots, inserted in sand, in close heat.

In the aquatic-house I noticed several large plants of the handsome *Pandanus Javanicus variegatus*, four feet high, and as much through. T. APPLEBY.

VARIEGATED GREENHOUSE PLANTS.

I CAN recommend the following variegated plants as adapted to greenhouse treatment, — viz., *Pinca major elegantissima*, *Veronica Andersonii variegata*, *Salvia fulgens variegata*, and *Coronilla glauca variegata*. And what can be better than the several variegated Geraniums, such as *Flower of the Day*, *Brilliant*, *Lady Plymouth*, *Lady Portsmouth*, and *Odoratissima variegata*, &c.?

I wish to draw attention to some plants that I considered tender till these last two years, when I have them doing beautifully out of doors. *Eccremocarpus scabra* flowering ten months in the year on a south-east aspect, and the colour of the flowers much better than it is under glass. *Cytisus racemosus*, protected a little in winter, and always in flower.—W. CARTER, the Gardens, Cherbury, near Dublin.

FRUIT PROSPECTS, AND OTHER POMOLOGICAL MATTERS.

THE frost has been very destructive. The radiating thermometer at Worcester, one hundred feet above the sea, was 25° on the 30th of March; and 27° on the 31st. Here, in the valley of Evesham, I have no doubt it was colder, but probably not so low as on the eastern side of the island; yet, as our forwardness was probably greater, we were no gainers by the difference.

The Pears were not seriously damaged last year by the caterpillar; they had a magnificent bloom—one mass of white from top to bottom. The whole of this is destroyed except a few Hesses. The Plums (some sorts) were quite out, and appeared sadly out up; but on examination I find a fair proportion have escaped. The *Diamond* were splendid. The later sorts, I hope, are scarcely injured. Cherries, about one blossom in three has escaped. Apples but little injured. Perry Pears were a bad blossom this year; I think they are tolerably safe. Wall fruit all, or nearly all, gone. Except Pears, the greatest destruction has been to Gooseberries and Black Currants. Some sorts of the former have lost eleven blossoms out of twelve; and unless some backward and nearly-unseen buds should be safe, it will be the shortest crop known for years. Red Currants are not materially injured. Early Rhubarb is damaged a little.

I am not without hope that the season, as a whole, may yet prove an average one; but this, of course, depends on our having no more severe frost.

I am happy to say the plans I adopted in the autumn for destroying the winter moths were eventually successful, but not in time to save my trees altogether from their eggs; as nearly half the period of their activity was spent in trusting to doubtful remedies. We compute the destruction at an average of twenty-five each tree: 40,000 trees will give one million moths. Say half of these were females capable of laying from two hundred to three hundred eggs, as is supposed to be the case, then we have from one hundred to one hundred and fifty millions of eggs, or caterpillars, less than we might have expected had I done nothing. The expense was about £40. Their season for laying is from the 20th of October to the 20th of December; and the best remedy we find is to daub the stems of the trees about once a-week with a mixture of eart grease and Baltic tar in equal proportions. It appears not to injure the trees. The females, as you are aware, have no wings, and must climb the stem.

Can you inform me of any remedy for the red spider on Gooseberry bushes that could be made use of on a large scale?

All washes in summer are impracticable; and dry sulphur produces no effect. I have written for some of Price & Co.'s soap; but fear it cannot be applied on a large scale—a winter dressing might be practicable.

The Pomological people imply a desire to classify climates. Might not a table be made applicable to the level of rails at every railway station in the kingdom? At first this would be necessarily imperfect, as local disturbing causes would be overlooked.

The latitude of each station could be obtained from a good map, and the height of rails above the sea either from published works or from the resident engineers of each line. The equivalent of height (that is, of altitude above the sea) and latitude being ascertained by our best meteorologists, the result might be given as feet of altitude above some standard spot; say the most southerly spot in England—the Lizard Point.

	Feet.
Lizard Point at sea level	0
London $1\frac{1}{2}^{\circ}$ north at 360 feet = 54° . Thames meadows, say, 20 feet above sea = 20°	560
Cheltenham 2° = 72° . Altitude 200 feet = 200°	920
Chester $3\frac{1}{2}^{\circ}$ = 1200. Altitude say 50°	1250

Thus you would have a list of altitudes at which each climate would be reached in the latitude of the Lizard. I have assumed 360 feet to be the equivalent of one degree of latitude. If more convenient, London might form the standard. If Government were memorialised they would probably order the railway department of the Board of Trade to prepare the list of latitudes and altitudes of the stations, and the Greenwich people (perhaps Mr. Glashier) to ascertain and calculate the equivalents.—R. V.

[The winter moth referred to by our correspondent is the *Cheimatobia brumata*. It is the cause of more destruction to our

fruit and other trees than almost any other insect; for no weather is sufficiently severe to injure either them or their eggs; and the caterpillars, in the early spring, will feed upon the opening buds and leaves of almost every kind of tree. The females, being without wings, may be prevented ascending our standard fruit trees, by smearing round their trunks a band of tar; but this must be renewed, as it dries every two or three days. The male moths begin to fly about just after sun-



set, during November and until the end of January. Their upper wings, when opened, measure across about $1\frac{1}{4}$ inch; but during the day they look much smaller, for they fold them up so as to form a triangle, and have their feelers, or horns (antennae) turned back over them. Those wings are pale grey, marked with various darker waved lines. The under wings are greyish-white, often having a notched line crossing their centre. The body, delicate and tapering, is yellowish-grey. The female crawls to the top of a tree and deposits her very small oval eggs upon the blossom and leaf-buds, as well as upon the shoots. She will lay from 200 to 300 eggs. The caterpillars and the buds come to life together; at first they are grey, and scarcely thicker than a horsehair, but they cast their skins, and finally become of a yellowish-green colour, shining, and with a blue line down the back. On their sides are two yellowish-white lines. The Apple buds are their favourite food; but they destroy without difficulty the leaves of the Hawthorn, Lime, Hazel, Rose, Elm, Willow, and Hornbeam.]

NOVEL METHOD OF GROWING ANTIRRHINUMS.

I HAVE a garden, the upper part of which is higher than the other; and the former is divided and supported by a wall about fifty yards in length and five feet high. Against this I planted, about four years ago, a choice collection of Roses; but, being a due south aspect, notwithstanding every care in mulching, watering, &c., I could not keep down the aphides, and I was obliged to remove the Roses. The builders of the wall had occasionally omitted a brick for the purpose, I suppose, of draining the soil which it supported. In these holes, last year, I planted Antirrhinums, which grew vigorously and flowered beautifully. They made such rapid growth that there was a great danger of

their being twisted off by the wind, which I prevented by nailing long pieces of cloth selvage over them. So successful was the experiment, and so much were they admired, that during the past winter I have had a great many additional holes made in the wall (without really injuring it), and filled them all with strong plants of the same flower, struck from choice varieties, in the autumn, and I anticipate a blaze of flowers. Does any other flower strike you as suitable for the purpose? Of course I am aware that the common Wallflower would do well, but it is soon out of bloom.—AN AMATEUR.

[The Valerians, red and white, do well on a wall.—EDS.]

GLASS FOR SHADING.

YOUR correspondent, "CALCEOLUS," in speaking of the culture of Calceolaria, says:—"I proceed to prick them out in the usual manner, and shade them by whitening the inside of the glass." Now, I almost doubt whether whitening the glass would subdue the light at all, for anything glazed or whitened has a tendency to make the light stronger and brighter. So that the intention of protecting the cuttings from light is entirely frustrated. For a trifling expense an extra light for the top of the forcing-frame, glazed with neutral tint or London smoke (coloured) glass, to be bought at any respectable glass-house for a few shillings, would be found, in hot weather, an invaluable protection both to cutting and tender plants.—STEPHEN B.—Y.

[Whitening the inside of the glass *does* subdue the light, and intercepts the heating rays of the sun.—EDS.]

DOUBLING THE POLYANTHUS.

I HAVE read with much interest Mr. Beaton's remarks on this subject; and must attribute his total want of success either to his Polyanthus-bed being not suitable—the seed being all from one plant had no disposition to produce extra petals; or, lastly, his inspection of each pip has not been minute enough. I certainly find some varieties more inclined to develop their stamens into petals than others; and, I believe, seedlings from the large yellow Polyanthus (which twelve years ago was called *Buchanan's Seedling*) have the greatest predisposition to convert their stamens into petals. Primroses, according to my experience, will do this more readily than Polyanthus. Mr. Porter, of Brixton Hill Nursery, some ten years ago raised a good semi-double yellow Polyanthus, but I have never seen it since; and Mr. Ivory sent out about the same time a new, good double Polyanthus, of a brickish-red colour, which I grew for some years, and always deduced, from the effect produced upon seedlings raised from seeds I crossed with *Buchanan Seedling*, that it must have had some of this strain. Mr. Ivory, about the time referred to, informed me that this double Polyanthus came accidentally in a lady's garden. Could the circumstances be accurately ascertained of situation, soil, if manured (and with what) prior to the doubling being produced, if much shaded, and how and what amount of moisture was supplied, the special requisites for effecting the doubling of this plant, might, in some degree, be deduced.

Last year I obtained a 2s. 6d. packet of florist-flowering Polyanthus seed from Norfolk; had it sown in pans, and the seedlings pricked out in a bed made in the kitchen garden, a stiff clayey soil, which had been heavily manured with ashes, night soil, the cleanings from the poultry-house, &c., the result of which is, they are strong plants, and I have one of them with an offset which has produced flowers with six, seven, eight, and nine petals; but all these are after the Primrose type, whilst the remaining part of the plant has grown Polyanthus flowers, and are only five-lobed, as is usual. Besides, I have found two pips on separate plants with one of their stamens developed into a petiole; and these I mark with a small piece of bass, and remove all the other pips. Many of these seedlings have seven and eight petals; but I am inclined to estimate at much greater value, for the object under consideration, the transposition of stamens into a small petal, than the mere addition of one or two more lobes to extend the circle of the pips; and for this reason, in dissecting a double Polyanthus or Primrose, although six lobes both in the sepals and petals are not rare, yet the normal five are chiefly the number. That which is deserving primary consideration is, it will be discovered that the method upon which the doubling is accomplished is by the outer circle of petals, or corolla, having one, often two, and

more, additional petals produced upon that which was the filament of the stamen. In fact, the stamens have been developed into petals.

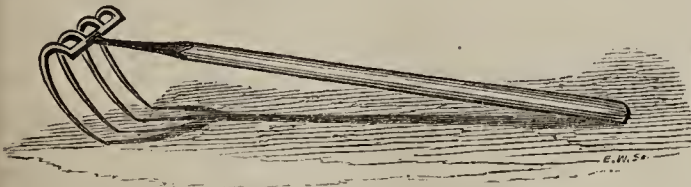
If the anatomy be further pursued, each whorl, although not connected as in the outer corolla, will show the same plan; but it is not so clear whether the many extra petals which form about the centre of the flower as they emanate from the ovary are not an effort to produce petals with stamens, which are also converted into petiolets, and finally, the pistil is developed into smaller petiolets. From all considerations, I value most a flower, from which to raise seed, that has one or more of its stamens developed into petals. It will be found sometimes that one side of a plant will produce these first steps to doubling, which I attribute to an extra supply of suitable food, and probably, some extra shade.

The cultural part of the question is, What are the requisites to induce the production of multiplicity of corolla in the Polyanthus to the sacrifice of other natural organs? Coarseness of leaf, I am inclined to think, is opposed to the end in view; and if so, might not culture, which would check the luxuriance of foliage, be advisable to try—such as repeated transplanting and division of the plant, and at some period of its growth a check, by withholding the supply of moisture to the roots?

We have no analysis of the petals of the Polyanthus to enable us to judge what manure would induce a plethoric state of the needed elements. This end might, in a degree, be attained by collecting the corollas, and decaying them; but I am inclined to conclude that cultural effects have great influences. It is rare, indeed, to find double flowers in the wild state; but last summer I discovered a double one of the annual wild Gentian (I believe the *G. amarella*), and it was growing upon a very sandy, dry, miserably poor soil, and was not above two inches and a half high; and showed a growth of starvation. But as the Polyanthus seems to produce enlarged corollas under circumstances of abundant supply of food, shade and moisture, it is likely that that which might effect the Gentian would have a counter effect upon it.—W. WOOLER.

THE DRAG HOE.

LIKE many men who start into the world of business with large aims and a small capital, we have had our share of checks and discouragements. Many a time when we have been nearly overwhelmed by expenses, and the last dime of our earnings, as a professional gardener, has been plainly visible in the toe of the stocking-bag, we have had to trust to our ingenuity to invent some labour-saving process that would keep that little bit of silver of, to us, "curious workmanship," a little while longer in its woollen retreat. One of these "notions" we now present to our friends in the shape of the *Drag Hoe*. This little tool saved us many a hundred dollars, and has enabled us to dispense almost entirely with horse-labour in the cleaning of nursery rows of trees. Instead of now having our rows three or four feet apart for the use of the Horse Cultivator, we plant them now but two, taking out and transplanting each alternate row every second year. Where land is valued at its "thousands" per acre, this is an important item.



With this fork a man or boy can do in one day what it would take him seven to do with a common hoe, and much more advantageously for the crops. It has to be used, however, before the roots of the weeds penetrate more than half an inch deep in the soil. "A stitch in time saves nine," is a necessary maxim in its application. Hoeing in very weedy ground will probably have to be done once or twice oftener in the season than would be required with the common hoe: but then this surface-loosening is a great help to the plant in dry weather. No *mulching* will ever be required where the soil is often stirred. No better non-conductor exists than the atmosphere,—and by admitting air freely to the surface soil, we prevent much of the evaporation that would otherwise ensue. Any village blacksmith can make one of these hoes.

There is an article very similar to this sold in the implement stores, under the name of "Potato Drag," but the tines are rather too broad to pass freely through the soil. The tines should be round, except at the point, which is slightly flattened. If you commence using this hoe soon after the ground is dug in the spring, and repeat it every week or ten days, a man can draw it almost as rapidly as he can walk.

The tines should be at right angles with the handle, so that when it is used it will be at an angle of about 45° with the earth. The engraver, in the cut annexed, has represented the tines as being too much bent.—*American Gardener's Monthly*.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 66.)

GRAPES.

NEGROPONT CHASSELAS (*Chasselas de Negrepont*).—This is a variety which, in the bunches and foliage, resembles the Royal Muscadine. The berries are at first of a pale green colour, and gradually become of a fine clear red as they attain maturity. In this respect they differ from those of the Red Chasselas, which, from their setting, are of a bright red colour. Like the Royal Muscadine, it is of excellent flavour, and early.

Nepcan's Constantia. See *White Frontignan*.

Noir Précoce de Gênes. See *Ishia*.

CEILLADE (*Ulliade; Boudalès; Cinq Saous; Prunelas*).—Bunches medium sized, and with long stalks. Berries large, oval, uniform in size, and dangling from long stalks. Skin thin, of a dark purplish-black colour, and covered with bloom. Flesh rather firm, and breaking, juicy, sweet, and of good flavour.

The vine is a very abundant bearer, and ripens its fruit in a cool vinery.

Oldaker's St. Peter's. See *Black St. Peter's*.

Palestine. See *Syrian*.

Pansee Musqué. See *Muscadine of Alexandria*.

Parsley-leaved. See *Ciotat*.

Passe Musqué. See *Muscadine of Alexandria*.

Passolina Nera. See *Black Corinth*.

Perle Blanche. See *White Sweetwater*.

Petersilien Gutedel. See *Ciotat*.

Pineau. See *Black Cluster*.

PITMASTON WHITE CLUSTER.—Bunches medium sized, compact, and shouldered. Berries medium sized, round, inclining to oblate. Skin thin, amber coloured, and frequently russety. Flesh tender and juicy, sweet and well flavoured. An excellent early grape; succeeds well in a cool vinery, and ripens against a wall in the open air.

Pocock's Damaseus. See *Black Prince*.

Poonah. See *West's St. Peter's*.

Pope Hamburg. See *Black Tripoli*.

Précoce Blane. See *Early Malingre*.

Précoce de Kienheim. See *Early White Malvasia*.

Précoce de Malingre. See *Early Malingre*.

Précoce Musqué. See *Early Saumur Muscat*.

Prinee Albert. See *Barbarossa*.

PROLIFIC SWEETWATER (*Froc de la Boulage; Gros Coulard*).—Bunches medium sized, cylindrical, loose, and not shouldered. Berries large and round, uniform in size. Skin thin, greenish-yellow, but pale amber when fully ripe. Flesh tender, juicy, and sweet, with an excellent flavour.

This is an excellent early white grape, and sets its fruit much better than the old Sweetwater. It ripens well in a cool vinery, and is well adapted for pot culture.

Prunelas. See *Ceillade*.

PURPLE CONSTANTIA (*Black Constantia; Purple Frontignan; Blue Frontignan; Violet Frontignan; Muscadine of Naples; Violette Muskateller*).—Bunches long and tapering, very much more so than those of Black Fron-

tignan, and with small shoulders. Berries large and round. Skin dark purple, covered with thick blue bloom. Flesh juicy, very richly flavoured, and with a Muscat aroma which is less powerful than in Black Frontignan.

This is a most delicious grape, and requires to be grown in a warm vinery. It is the *Black* or *Purple Frontignae* of Speechly; but is very different from what is generally cultivated for Black Frontignan—that variety being the Blue or Violet Frontignae of Speechly.

PURPLE FONTAINBLEAU.—I have never seen this grape, but Mr. Rivers speaks of it as a very hardy variety, ripening against a wall in the open air; well adapted for pot culture, and a prodigious bearer. The berries are oval, light purple, sweet, and juicy.

Purple Frontignan. See *Purple Constantia*.

Raisin d'Alep. See *Aleppo*.

Raisin d'Autriche. See *Ciotat*.

Raisin de Calabre. See *Calabrian Raisin*.

Raisin des Carmes. See *West's St. Peter's*.

Raisin de Cuba. See *West's St. Peter's*.

Raisin de Frontignan. See *White Frontignan*.

Raisin du Pauvre. See *Gromier du Cantal*.

Raisin Précoce. See *Black July*.

Raisin de St. Jean. See *St. John's*.

Raisin de Servie. See *Gromier du Cantal*.

Raisin Suisse. See *Aleppo*.

RED CHASSELAS (*Red Muscadine; Chasselas Rouge; Chasselas Rouge Foncé; Cereze; Septembre*).—Bunches medium sized, loose, rarely compact, shouldered; with long, thin, and somewhat reddish stalks. Berries medium sized, round. Skin thin, red, covered with a violet bloom. Flesh juicy and sweet. The vine is a great bearer, and will ripen its fruit in a cool vinery. The most remarkable character of this variety is, that from the time the germ is visible, or, as Mr. Rivers says, "no bigger than a pin's head, it changes to red," and it becomes gradually paler as the fruit ripens. Mr. Rivers says, "it is as good as Royal Muscadine when fully ripe, and a great bearer."

RED FRONTIGNAN (*Grizzly Frontignan; Muscat Gris; Muscat Rouge; Moscatel Menudo; Cevana Dinka; Rother Muskateller; Grauer Muskateller*).—Bunches large, long, and generally cylindrical, but occasionally with very small shoulders. Berries above medium size, round. Skin rather thick, yellow on the shaded side, clouded with pale red on the side next the sun, and covered with grey bloom. Flesh rather firm, juicy, but not very melting, with a rich, sugary, and musky flavour.

Ripens about the end of September when not forced, and requires the heat of a warm vinery.

Red Hamburgh. See *Black Hamburgh*.

Red Muncy. See *Catawba*.

Red Museadel. See *Morocco*.

Red Muscadine. See *Red Chasselas*.

Red Muscat of Alexandria. See *Black Muscat of Alexandria*.

Red Rhenish. See *Lombardy*.

Red Taurida. See *Lombardy*.

RICHMOND VILLA.—This is a variety of Black Hamburgh, colouring, but not ripening some days earlier than the old sort, and very much inferior to it in flavour; inferior, also, to Black Tripoli in flavour.

Rossea. See *Barbarossa*.

Rother Muskateller. See *Red Frontignan*.

(To be continued.)

TASTE IN DESIGNING FLOWER GARDENS, WITH A FEW WORDS ON THEIR ORNA- MENTATION.

THERE are, perhaps, few persons, who are in possession of a plot of ground, who do not gradually become fascinated by the charms of rural life and its occupations; who do not make essays

in the pursuit of horticulture; and who, however small the space allotted to them may be, attempt to give it an expression of design. Not only do they display their peculiar "taste," but combine this with recollections of what Mr. A. has done at B., or the fine heart-shaped bed of Love-lies-bleeding, at Paxton Villa, Highbgate. In progress of time, a Maltese cross is added, as well as two half-moon-shaped beds, and one or two which are bounded by right lines, and are multangular. Our good friend has heard that Nature abhors a straight line; and so in making his walks he avoids taking the courses which are dictated by common sense, and makes the most circuitous bends without anything to account for them!

We pity the unhappy visitor who is doomed to walk round, and pour out his laudations on the "taste" exhibited by the gifted proprietor of Fungus Cottage. In passing along, he has the most ample evidence of the "taste" of his friend exemplified in the varied lines and forms of his beds, the vagaries of his walks, the profusion of his statuettes, his fountains, grottoes, mounds of roots, and rockwork; and last, but not least, his busts of Socrates, Epaminondas, and Demosthenes; not to mention Venus and Apollo; with some corbels from the old Abbey, and a pinnacle of the church tower, which are placed close to a rustic basket in a state of incipient decay!

This picture of a villa residence is by no means overdrawn; and although there are many bright and honourable exceptions to be met with, it is most strange, and passing strange, to see the incongruous and discordant parts which people collect together to form an harmonious whole. No greater mistake is made than in the mixture of elegant stone vases and tazzas with those fragile and rude materials called rustic baskets. The former, chaste in elegant design, are emblematic of the most advanced stage of progress in art, and convey every idea of durability and continuity; while the others are only semi-barbaric, in an artistical point of view, and are almost as evanescent as the flowers they are intended to hold.

Even if buildings, vases, statuary, and other artificial works, are constantly recurring in very extensive gardeus, they do not produce the variety which is sought for; but, as at that magnificent place, Alton Towers, they produce endless monotony. So many objects, having different expression, cannot form the harmonious whole that should be. They are the costly evidences of great wealth made subservient to empirical taste. Let us instance Stowe as a place on a truly grand scale. Here every temple is part of the great design of the general whole, most perfect in itself, and perfect in all its parts; a complete *chef d'œuvre*.

No one can wish to mistake a garden for anything but a work of art—a work in which beautiful forms and lines are recognised, while all its parts correspond so exactly, that the removal of any one of them would derange the whole. As a rule, it may be laid down that curved lines are more beautiful than straight ones. We associate the qualities of beauty in the feminine form, of delicacy, of fineness, and of tenderness with them; while angular lines are expressive of roughness, strength, tenacity, and maturity, as instanced in the limbs of old trees, and the forms of solid masses of rock.

In disposing the area of a small garden, it will be all-important to consider well the production of harmony of expression; and to make such arrangements only as will assist in carrying out the objects in view. As to ornaments, it is better to have few of them than to fill the place with those of incongruous character; many of which would be as much out of place as a Goth in one of the saloons of Paris.

It is most important, also, to observe that want of breadth is one of the most common errors in amateur designs. The constant spotting over of lawns without attention to producing massive effects by grouping, and the frequent shutting up retiring verdant glades by plants, are sources of much mischief in this respect. In every place there ought to be one or two leading breadths of as much extent as possible: and if an aerial distance can be got at the same time, it will much enhance the effect by leading the spectator to suppose that the property is most extensive in that direction.

Great care should be taken to avoid that regular mixture of shrubs and trees which is too often practised, and which produces the most perfect monotony: it is far better that one kind should prevail here, and another there—a system which produces true variety. When one passes from a grove of Elms to one of Beech, and again to one of Oaks, one feels that "a change has come o'er the spirit" of the scene; but where Oaks, Beech, and Elms are mixed it is all sameness.

Much of the beauty inspired by garden scenery is owing to the many varied and beautiful forms which the plants and flowers present to our ravished vision, and their silent associations, emblematic of our frail and fleeting existence; beautiful in their bud of youth, in the full cup of maturity, and exciting our sympathy when stricken by death, we love them and we mourn for them; we consign them to the tomb of winter, hoping to meet them again in other years under brighter suns and cloudless skies. "Resurgam" is their motto. But I fear that soaring on the wings of fancy, and infatuated by the interest I feel in my theme, I am losing sight of the intention of this paper.

Do our good friends, who indulge themselves in gardening, remember that when they speak of their "taste" they are amenable to the ordeal of criticism; and unless it is consistent with the immutable laws which form its basis, it is but a nickname for their whims or caprice (they may call it which they please).

It is not to be expected that all who have gardens should be *au fait* at their arrangement. It is an art which has been thought not to be beneath the attention of the greatest kings, philosophers, and statesmen; even "Solomon in all his glory" was touched with the unpretending beauty of the "Lilies of the field."

Let us, then, counsel our metropolitan friends, who are intent upon leading a quiet suburban existence, having finished the toils of commercial life and amassed plenty of money, that, should they purchase a place to exercise their skill upon, they should have the opinion of a clever man as a landscape gardener, and have a general plan designed and prepared, after thorough consideration, to be commenced upon, and carried out progressively; thus avoiding the many rocks a-head upon which such people split. Let them, also, get to understand the rules and principles of the art in a general manner. So will their places yield them more satisfaction; and the public in visiting them will be spared the excruciating pain of seeing, as they might have done at the Lawrencian Villa, Grecian vases of the first class set down upon pillars of flints; or, in other places, standing upon bare earth without any pedestals at all.

In no sphere of his observation has man so many, so beautiful, and so varied a collection of graceful curves presented to his view as he has in the varied forms and inflections of the stems of gigantic grasses with their nodding plumes of silvery feathers; in the tendrils of the Vine, the Hop, and the Ivy; in the stem of the Rose, bent with its fulness of the dew of Heaven into a graceful curve; in the varied and infinite conformation of leaves, flowers, and fruits. It would be sad indeed, if, while having such lessons from the book of the Divine Artist Himself, man should not avail himself of the exquisite delineations of beautiful forms which the book of Nature presents, and appropriate to himself in his gardens those lines of beauty which are so adapted for his purpose.

The exact expression of beautiful lines is an important point in the keeping of a garden. Every curve and sinuosity should be most regular and true; but with the utmost exactness, if in grass; and trimmed with mathematical precision, if in Box or such-like materials. For, however good the design may be, if it is not artistically carried out it will prove a failure.

A small garden well kept is always much more satisfactory than a large ill-kept one. Let no one, therefore, attempt to do too much; but let every person who intends designing a place consider and proportion his means to the end. Thus will the beauty of propriety be given to the creation of artistic skill; and whilst the art of design is prominent in the whole, the beauty of utility and propriety will always conduce to the superior enjoyment of the owner and his friends.

We greatly advocate that, whatever the style of the house, whether Italian, Grecian, or Gothic, all its subordinate offices, whether attached or detached, should be in the same style. We have marked many deviations from this rule with regret. We have seen old manor houses with flimsy Gothic dairies. And we have seen places where this principle is carried out, as at Arundel Castle, which we have thought both unexceptionable and incomparable.

"Taste," says Mr. Allison, "is, in general, considered as that quality of the human mind by which we perceive and enjoy whatever is beautiful or sublime in the works of nature or art." But in the investigation of the beauty and sublimity of material forms, there are certain rules and axioms to which we must refer as established principles; and it is only by a knowledge of these principles, by study and reflection, that we can lay the foundation of correct "taste."

The community has now the most ample opportunities of

becoming familiar with works of art; and the great facilities afforded by our various exhibitions are doing much to diffuse among us an improved "taste," which, when fully developed, will be a source of real enjoyment and a blessing to our country.

The delightful art of gardening wants not for patronage; and we do trust, that as an art of design, it may continue to receive its share of attention, and become established on fixed principles of really good "taste."—HENRY BAILEY, *Nuneham*.

QUERIES AND ANSWERS.

NIGHT-SCENTED HEATH—CULTURE OF DESFONTAINESIA SPINOSA.

"Will you tell me what the real name of the Night-scented Heath is, and whether it really is a Heath? for I doubt it. Also, the best way of cultivating *Desfontainesia spinosa*? and whether cuttings are made of the young unripened wood? and what soil suits it?"—ROSE.

[The Heaths that are scented are *Erica muscari*, *E. fragrans*, and *E. odorata rosea*. It is, indeed, a matter of doubt whether any of these give out their perfume in the night so sufficiently as to deserve the character of "Night-scented." It is very probable that your plant is the *Erinus Lychnidea*, a low-growing species with long, narrow leaves, and white flowers, which expand towards the evening, and emit then a pleasant perfume. We could be certain if you sent a specimen. The other night-smelling flowers are the *Mathiola tristis*, *Oenothera fruticosa*, *O. pumila*, and the well-known *Roseda odorata* (Mignonette).

Your second question is more easy to answer. *Desfontainesia spinosa* is a spiny, Holly-like shrub, and in favourable localities is hardy; but on account of its rarity it is as yet treated as a greenhouse plant. It requires a compost of turfy loam, sandy peat, and leaf mould, in equal parts. The pots should be well drained, and the plant should not be over-potted. It propagates easily by young shoots taken off just where the last year's wood terminates, planted in sand under a bell-glass, and just kept moist. The cutting-pot and its contents should be placed in a gentle heat. This is the present practice; but there is no doubt ripened cuttings would root readily under a hand-glass in a shady place in the open air.]

FERNS FOR A WARDIAN CASE.

"I am about fitting up a glass out-door Wardian Case for Ferns. It is seven feet long, two feet three inches wide, three feet six inches high; the roof, also, is glass. It is almost shaded on the south and east sides, partially on the west and the roof. The front faces the north. I have given the floor a coating of pitch, and think of making a drainage of small pumice stones, and placing large pieces of the same material amongst the plants. My chief difficulty is with the soil. What do you recommend? A list of suitable Ferns will greatly oblige. I have a fine plant of *Dicksonia hispidula*, of *Pteris longifolia*, the common *Adiantum*; *Diplazium pubescens*, and *Cyrtomium falcatum*. Also, a lot of choice seedlings, the names of which I do not know, but can easily ascertain."—M. L.

[Your Wardian Case is, we suppose, a fixture; and from its position is, perhaps, near a building. It is to be feared it has too little light. Though many kinds of Ferns love shade from hot sun, yet there are still more that will bear and thrive better for any amount of light. Your preparation for drainage is right; and for soil, procure some fibrous peat from a common, where the wild Heath thrives, next some turfy loam, and leaf mould; mix equal parts, but do not sift it, only break or chop the larger lumps. Add a free mixture of sand through the whole. Previous to using the soil, cover the drainage either with a thin layer of moss, or thin turf, cut from an old pasture; only be careful that such turf contains no bad weeds—such as Docks, Thistles, Butter Cups, or Couch Grass.

If your Case is a fixture, you must be careful not to plant any Ferns in it that are tender; but if you can place it under shelter from frost, then you may plant any that will bear greenhouse treatment. Your *Dicksonia*, *Diplazium*, and *Pteris* are not hardy enough to bear frost.

Then, again, have you an arrangement by which you can give

air, to let off the damp, and to reduce the temperature in hot weather? If not, be sure and adopt some contrivance for that purpose.

Also, have the roof made removable, for the convenience of removing decaying fronds and weeds, watering, &c. You will find this point, if attended to, very convenient.

The following kinds we have selected out of an immenso number, as being suitable for your purpose. None of them are very expensive, and all of them are very beautiful:—

- Adiantum pedatum*. Deciduous. One foot.
- Asplenium fontanum*. Evergreen. Four inches.
- „ *Odontites*. Deciduous. One foot.
- „ *marinum trapeziforme*. Evergreen. One foot.
- „ *septrionale*. Evergreen. Four inches.
- „ *filix-femina multifidum*. Deciduous. One foot.
- Cystopteris sempervirens*. Evergreen. Nine inches.
- Lastræa filix-mas cristata*. Deciduous. One foot.
- „ *polyphylla*. Deciduous. One foot.
- Onychium Japonicum*. Deciduous. One foot.
- Polystichum Lonchitis*. Evergreen. Nine inches.
- Scolopendrium crispum*. Evergreen. Six inches.
- „ *ramosum*. Evergreen. Six inches.
- „ *undulatum*. Evergreen. One foot.

In addition to these Ferns, a few Lycopodiums might be planted among them. The following are suitable:—

- | | |
|----------------------------------|------------------------------|
| <i>Lycopodium denticulatum</i> . | <i>Lycopodium clavatum</i> . |
| „ <i>stoloniferum</i> . | „ <i>selago</i> .] |
| „ <i>alpinum</i> . | |

ARABIS VARIEGATA—PRIMULA SCOTICA.

“A few hints respecting the management and increase of the *Arabis variegata*, and the *Primula Scotica*, will be gratefully received by ‘AN OLD SUBSCRIBER,’ who, in trying to divide them, has twice lost them. The *Primula* flowered beautifully last spring; the plant was large and healthy, and he divided it into three; but two of the plants died, and the third has flowered well this year, but the plants now look very sickly. Every plant of the *Arabis* is dead. Is the ‘OLD SUBSCRIBER’ mistaken in believing both plants hardy, or are they frame plants?”

[These delicate little alpine plants should be kept in pots, in one-half peat and half loam, and be plunged in a cold frame till they are of good size. About the middle of April is the best time to divide them; and, after that, they should not see the sun for a month. Good established plants of them will do well turned out on rockwork, and attended to in watering during the summer; but some of them should be kept in pots, to make more sure of them in winter.]

WHEN PEACHES HAVE FORMED THEIR STONE—VINES GOING BLIND.

“Will you be so good as to tell me when Peaches have really stoned?”

“Will you also tell me what is meant by Vines going blind? I saw a house some weeks ago in which there seemed to me a great show of fruit; but I have seen the same house again, and only few bunches appear to be coming forward. Still the Vines look healthy. I fancy that here is a case of going blind. Can you tell me why? Is it a case of too little heat, or too much heat? or what?”—W. C.

[We hardly understand your first question; but if you pierce a fruit with a pin, and find that you cannot penetrate the centre, you may be sure the fruit is stoned or stoning. Gardeners always know the time; as, during that period, the size of the fruit remains stationary, and it is important not to hurry them until they begin to swell of their own accord.

Vines are said to “go blind” when the incipient bunches turn up like tendrils, or the flower-buds turn yellow, or droop, instead of opening or setting. Heat, or want of heat, has little to do with this disappointment. It is chiefly owing to one of two reasons—1st, want of maturation of wood last season; 2nd, want of relative action between the roots and the branches at the critical period, whether owing to want of heat at the roots, their depth, or over-moist condition. In either case, the Vine, so far as growth is concerned, may seem to be in the highest health; but the fruit will suffer before the leaves, and luxuriance and fruitfulness are not correlative.]

REMOVING SHRUBS FROM A PARSONAGE GARDEN.

“I should thank you to let me know whether there is any way of securing permission to remove costly plants and trees which have been collected by a resident Vicar in the vicarage-grounds attached to his parsonage. I have built a parsonage-house, and laid out the pleasure-grounds, perhaps more expensively than others would approve—I have planted good specimens of costly trees, &c. The benefice is very poor, and probably I may leave in the course of a few years, and my successor will not be disposed to take my hobby at a valuation for the plants; whereas plenty of nurserymen would be glad of the chance.”—THE POOR PARSON.

[We do not think there would be any difficulty in the way of your removing the shrubs during your incumbency. It would be quite a different case after your death or resignation. Whilst you are the incumbent you may move the shrubs at your pleasure without much fear of interruption. There is no one who can secure to you permission to remove them after your successor is appointed, and we think he could prevent your removing even a Box-edging.—EDS.]

LONDON HORTICULTURAL SOCIETY.

THE Anniversary Meeting of this Society was held in the room of the Society of Arts, John Street, Adelphi, on Monday, the 2nd inst. Rev. L. VERNON HARCOURT in the chair.

Dr. Lindley, as Secretary to the Society, read the Report from the Council. It stated that “a gardener, most strongly recommended as a man of great intelligence and experience, was appointed, with a liberal salary, and the entire management of the establishment was entrusted to him;” that “considerable alterations were made in the garden, at a great cost;” that the Exhibitions were continued; “collections unsurpassed for beauty, utility, and interest, were brought together;” but that, notwithstanding all that, the debt of the Society had risen from £9,388 10s. 4d. in 1856, to £9,986 18s. 11d.

The Report then adverted to the great item of expense induced by the house in Regent Street, which cost £233 per annum for ground rent, land tax, and rates alone, exclusive of the money borrowed on its security, and the charges incident to so large a residence. This, however, was now disposed of at sale by auction; and with fixtures, fittings, and useless furniture, produced £3,061 4s. 6d. (from which, however, the Secretary does not seem to have deducted the charges attendant on the sale). In exchange for this expensive house, chambers at No. 8, St. Martin’s Place, have been taken, at a total rental of £80 a-year, including taxes. The Council do not attempt to conceal their regret at the sale of the large and valuable library which had been forming during a period of forty years; but they considered it would produce a considerable sum towards the extinction of the debt, and “in the opinion of the officers of the Society, scarcely more than twenty Fellows ever consulted it during the year.”

It is intended to divest the garden of its ornamental character, and reduce it to one of mere utility; to abandon the Exhibitions there, and to hold them in St. James’s Hall; to substitute ballots for seeds and plants, instead of distribution as formerly; and by these changes it is expected the Society will be improved in utility.

While the ordinary expenditure for 1858-9 has been about £120 below its estimate, the ordinary income for the same period fell short of the estimate, stated in the last annual report, by £991 15s. 11d.; still it was upwards of £400 in excess of the previous year; and in the coming year the Council have so arranged it, that there will be a surplus of £1,300 available for the reduction of the debt, or for meeting contingencies.

Last year, the number of Fellows on the roll was 978, and this year it is 985; but small as this increase may be considered, the Council trust that it may be taken to indicate a determination on the part of the public to sustain this valuable Association. Sixty-two new members were elected during the year; thirty resigned; and twenty-five deceased.

From the Balance Sheet of the Society, it appears that the debt now amounts to £10,752 5s. 4d., and the assets (which include the sale of the house in Regent Street, and the Library, and supposing all the subscriptions are paid), to £6,057 9s. 8d. showing a balance against the Society of £4,694 15s. 8d., being £2,524 3s. 2d. more than it was last year.

The estimate of income for the following year is £3,162; and for expenditure, £1,800, by which the Council expect a surplus of £1,362.

After the reading of the Report, and some observations from the Chairman, Mr. CHARLWOOD said, after the hearing the Report which had just been read, he was sorry to find that the Society was in a position so much worse than last year; that, whereas, the balance against the Society last year, was £2,170 12s. 6d.; this year it was no less than £4,694 15s. 8d. For the last twenty years he had annually urged upon this Meeting the necessity of keeping their expenditure within their income, and warned them of the ultimate result of the reckless course they had always pursued. All he had said was of no avail, the Council persisted in taking their own way, and he was not surprised to-day to find the funds of the Society in the state in which they were now exhibited to the Meeting. He regretted exceedingly, that, by pursuing such a course, they had been driven to sell the library, and to contemplate the abolition of the garden. He had been informed that the Council had decided on giving up the Arboretum, with all the fine specimens of trees and shrubs of which it was formed; but he trusted that, ere such a step was taken, the Fellows of the Society would have an opportunity of expressing their opinion.

Mr. WOOD said he was somewhat disappointed with the Report, which was too meagre in the information it gave. Among other things, he should like to have heard how many of the new members elected during the past year were two-guinea and how many four-guinea members. He thought, also, that there ought to be some medium of intercommunication between the Council and the Fellows. He was resident in the country, and knew nothing of what was going on in London ever since the "Journal" of the Society was discontinued; and he would also like to see the Council and the Fellows brought more frequently together than they were at present, so that those who took an interest in the welfare of the Society might know what the Council was doing; but, according to the present arrangements, that could only be arrived at once a-year. He suggested that it would give the Fellows greater interest if these meetings were held quarterly.

Mr. HENDERSON said, he also lived in the country, and knew nothing of what the Society was doing. Many friends of his, who knew he belonged to the Society, frequently asked him for information upon subjects with which, as a Fellow, he was expected to be acquainted, and he felt ashamed to say he could afford them no assistance. He understood, since he came into that room, that there had been a ballot for plants. Of this he had been wholly ignorant, otherwise he would have availed himself of the privilege. [It was here stated that the ballots had been advertised in the *Gardener's Chronicle*.] He read THE COTTAGE GARDENER, and had seen no advertisement to that effect appear in that Journal; but perhaps the Council did not think that an official organ. He hoped that some means would be devised by which Fellows resident in the country would be put in possession of what the Society was doing.

Mr. H. G. BONN could not allow this opportunity to pass without stating that, although a member of Council, he did not approve of many of the acts the Council had done. He was sorry to say he was too frequently in the minority, and he therefore wished it to be understood that many of the steps that have been recently taken did not meet with his approval. Among these, he said, he was determinedly opposed to the abolition of the arboretum. The only pretext there was for proposing such a step was the expense of keeping it up. Now, he believed that that great ornament to the gardens, where were some of the finest specimens of rare trees and shrubs, was of too much value and furnished too great an object of attraction to the garden to allow the small cost of keeping it up to be a consideration. He would himself undertake to keep it in the most perfect order for £50 a year. [Expressions of doubt.] He insisted in saying he was prepared to do so. He had much experience in gardening, and knew what the expense of such establishments was, and he was convinced that the arboretum might be kept up for the sum he mentioned. There was another subject he desired to bring before the Meeting, and that was the sale of the exhibition tents, which the Council had determined to dispose of. These tents had cost £1300, and if they are parted with it effectually prevented the Society from holding another exhibition at Chiswick. It was in fact saying that there was no hope of recovering the Society, and therefore they must part with everything. If the Society should be resuscitated, and these tents were sold, another outlay of £1300

would have to be incurred before another exhibition could be got up. He strongly protested against the abolition of any portion of the garden.

Mr. RIVERS said he was sorry to hear it had been proposed to do away with the arboretum. He remembered the place from his boyhood, and took very particular interest in the specimen trees and shrubs that were growing there. There were few places where one could go to see the habits of growth, and the size to which the recently-introduced ornamental trees attain; and he thought that a collection such as that so near London ought not to be broken up, and one of the most attractive features of the garden abolished. He hoped there would be some pledge from the Council that no step of that kind would be taken without first consulting the Fellows of the Society.

THE CHAIRMAN stated that overtures had been made to His Grace the Duke of Devonshire to take the arboretum off the hands of the Society, but nothing further had yet been done in the matter; and he assured the meeting that nothing further should be done towards such a result before first obtaining the consent of the Fellows.

After a somewhat lengthened speech from Mr. GODSON, who surveyed the past and present state of the Society, and who recapitulated the opinions expressed by the other members who had spoken, the ballot for the new Council was taken, and was as follows:—Earl Ducie in place of Sir J. Ramsden, Bart.; Professor Henfrey in place of Mr. Glendinning; and Mr. Charles Edmonds in place of Mr. John Spencer. The other officers remain as before.

The large and valuable library of the Horticultural Society was sold by auction by Messrs. Leigh, Sotheby & Co. during the past week, and realised the sum of £1112 1s. 6d. It contained some of the most valuable botanical and gardening books, among which were *Sibthorp's Flora Græca*, 10 vols., £60; *Gallesio Pomona Italiana*, 2 vols., £20; *Redouté Liliacées*, 8 vols., £20; Wallich. *Plantæ Asiaticæ Rariores*, £12 17s. 6d.; Jacquin. *Icones Plantarum Rariorum*, £11; Jacquin. *Eclogæ Plantarum*, £10 2s. 6d.; Lindley, *Sertum Orchidaceum*, £11 15s.; Griffith's *Posthumous Papers*, £11 5s. The beautiful original drawings by Bauer, W. Hooker, Barbara Cotton, C. J. Robertson, Mrs. Pope, and Mrs. Withers did not realise nearly their gross value. The Chinese Drawings of Plants, £70; Fruits by Hooker, Cotton, Robertson, Mrs. Withers, &c., £49 10s. Bauer's *Passiflora*, £15 15s. The total obtained for the drawings was £211 16s.

We do not know who had the management of this sale; but it appears to us to have been most injudicious to have had it during the same week, on the same days, and at the same hours as the Anniversary Meeting, the Fruit Committee Meeting, and a Council Meeting were held.

BRITISH POMOLOGICAL SOCIETY.

A MEETING of the British Pomological Society was held on Thursday last, at St. James's Hall, Piccadilly, Robert Hogg, Esq., Vice-President, in the chair.

The object of this Meeting was to award a prize of One Pound, offered by Mr. J. Spenceer, of Bowood, for the best Seedling Kitchen Apple.

There was a good attendance of members; and several dishes of well-kept Apples were exhibited.

The seedling, to which the prize was awarded, was raised by Mr. Samuel Bradley, gardener to W. F. N. Norton, Esq., Elton Manor, near Nottingham, and was raised from seed of Dumelow's Seedling. The variety has been named *Baron Ward*. It is below medium size, and of an ovate shape. The skin is of a fine golden yellow colour, quite smooth and shining. Eye slightly open, and stalk short. Flesh very tender, crisp, and fine-grained, with a nice subdued and very agreeable acid, not unlike, in flavour, that of the Gooseberry Apple. It is not so rough and austere as the Dumelow's Seedling, against which it was tested; and was considered a very valuable culinary apple for this late season of the year. It seems to keep well without shrivelling.

Rev. J. Bramhall, of St. John's, near Lynn, sent specimens of a seedling which he had previously submitted to the Society at the Meeting of the 6th of May last year. The opinion given last year of this admirable dessert Apple, called *Clissold's Seedling*, or *Longmore Nonpareil*, was again sustained. It is a most valuable Apple at this late season. See report in COTTAGE GARDENER, Vol. XX., page 84.

Mr. Horton, post-office, Toddington, Bedfordshire, sent a

Seedling Apple of about medium size, greenish-yellow on the shaded side, and dull red next the sun. A month ago it would have been in good condition; but it had now become mealy. It had the remains of a good-flavoured Apple, somewhat like that of *London Pippin*.

Mr. E. Simpson, gardener to Lord Wrottesley, Wrottesley Hall, Wolverhampton, sent a dish of very beautiful *Dumelow's seedling*, large, firm, and heavy. They have been beautifully kept.

From the Rev. Henry Manton, of Sleaford, was received a dish of *Scarlet Nonpareil*, which was considerably shrivelled, but well-flavoured, and were also well kept for that variety.

The next Meeting of the Society will be held on the 23rd of June.

VARIETIES.

JAPAN AS RECENTLY SEEN.—We are afraid to trust ourselves to a minute description of the country scene through which we now rode. It was neither monotonous nor stiff; yet the road, fields, ditches, drains, and cottages, all looked as if they had just been constructed, tilled, elipped, planted, or cleanly swept, ready for special inspection;—industry combined with the greatest economy of space and material, blended with taste and beauty. Our precious saddle—we won't use violent language, fair reader—was enough to knock all appreciation of the picturesque out of any one, and it is the best guarantee for our not exaggerating what we saw. There were orchards of Pears and Peaches, where the trees were trained over neat trellises of Bamboo, as if they had been Vines—bright patches of the Taro plant spread their dark-green broad leaves on the one hand; and on the drier soil the Millet plant of Northern China flourished, as well as the rich golden ears of the Indian Corn. Now a gentleman's house appeared within a neat enclosure of hedge, as well elipped as that of a London suburban villa; but its stiffness of outline was broken by a Japanese *Convolvulus* having been allowed to run over it, loaded with many-coloured flowers. Very fine groves of trees were seen; and we noticed among them two sorts of Pine tree, one which throws out its sprays like the Norfolk Island Pine, and the other the ordinary one peculiar to Japan. The Maple, Chestnut, Walnut, and Oak, we likewise recognised, or trees very like them, and the Orange was not rare. Bamboo was plentiful; and finding it in a climate which in the winter is undoubtedly severe, we could not help hoping that it, as well as the Banana tree of China, may be naturalised on the south coast of England. We were anything but tired of the scenes through which we were riding, when the Temple of Tetstze came in sight; and we rattled through a street, followed by a vast throng of wonder-stricken Japanese, and turned into the portals of the temple. A broad well-paved court led to a building that stood upon a lofty basement. A fine flight of granite steps led to the porch, round which, as well as up the steps, there was a balustrade in stone and bronze. The interior of this Buddhist temple consisted mainly of a very elaborate altar, having a raised dais in front, carefully railed round, upon which there was the most extraordinary collection of metal castings, mostly of white copper, we ever saw. They were, no doubt, offerings to the placid stucco deity, which was ensconced behind candlesticks, lights, and silken banners. Everything was clean, neat, and in working order, evincing that the religion, such as it is, is active in Japan, not dormant, worn-out, effete, as in China. The priests were well to do, decently clad, and reverent in their appearance, and were treated with respect. The Principal saluted Lord Elgin, and paid him every attention, offering to conduct him over the grounds and cloisters. Time, however, pressed for the ride back to the Embassy, and the civility was declined. On reaching the porch, the scene round the grand flight of steps, and across the court, was such a sight as only Japan could produce upon so short a notice. Every space was literally crammed with human beings. The corridors of the temple, the galleries in the cloisters, the walls and roofs which overlook the yard, were black or brown with men, women, and children. It was a wonderful sight. They shouted, not violently, but shouted with astonishment and delight at the spectacle the half-dozen Europeans afforded them. The prospect of having to fight a way through such a sea of human beings was not cheering; but three or four policemen quietly cleared the way, and a path opened before us to the gate. There the policemen checked the crowd, who were on the point of rushing after us into the street, by securing the gates instantaneously, amidst a roar of indignation from the thousands who found themselves thus shut up within the limits

of the temple. Then came cries, and laughter, and a rush; and as we rounded another portion of the temple enclosure, the prodigious crowd had collected for a last gaze at us, where a broad intervening ditch, however, prevented them from incommoding the strangers. Returning by the way we had come, we halted for refreshment at "the Hotel of Ten Thousand Centuries," which was as decent a house as a good many European countries could produce, and a vast deal cleaner and more moderate than a great many we could mention in Great Britain. Functionary No. 2 here ate and drank himself into such a state of supreme contempt for foreigners, that he left us; and we only caught sight of him again for a moment in what might have been the window of his club, where, surrounded by swells as great as himself, to whom he was pointing out the various members of our party, he had a bevy of Japanese houris dancing attendance upon him. As our cavalcade neared Yedo, it was certain that it had been expected to return by this route, and all Kanagawa, Omagawa, and the inhabitants of that part of Yedo, were there to stare. The crowd at a Lord Mayor's Show, in the old days when such glories were, can alone bring before the reader the idea of such a vast mass of human beings thus brought together. The pavement, side-streets, and houses were full; yet no insult was met with, and no hindrance suffered. In places where the crowd in a side-street threatened to block the thoroughfare by pouring into the main street, a small piece of rope or string was stretched across from corner to corner, and no one dared to break the fragile barrier. In the suburbs, at 5 p.m., everyone was bathing, and "cleanliness first, modesty afterwards!" seemed to be their motto. In some cases, the tubs were outside the doorways, and the family enjoyed themselves in the open air, rubbing themselves down in the steaming hot water with cloths; others had their tubs in the room on their ground-floors, but the front of the house was perfectly open; and the manner in which the fair Eves stepped out of their baths, and ran to stare at us, holding a steaming hot and squalling babe, was a little startling.—(*A Cruise in Japanese Waters.*)

HOW THE HOONUMAN MONKEYS KILL SNAKES.—The Banyan tree is the favoured habitation of these monkeys; and among its many branches they play strange antics, undisturbed by any foes excepting snakes. These reptiles are greatly dreaded by the monkeys, and with good reason. However, it is said that the monkeys kill many more snakes in proportion to their own loss, and do so with a curiously refined cruelty. A snake may be coiled among the branches of the Banyan, fast asleep, when it is spied by a Hoonuman. After satisfying himself that the reptile really is sleeping, the monkey steals upon it noiselessly, grasps it by the neck, tears it from the branch, and hurries to the ground. He then runs to a flat stone, and begins to grind down the reptile's head upon it, grinning and chattering with delight at the writhings and useless struggles of the tortured snake, and occasionally inspecting his work to see how it is progressing. When he has rubbed away the poor animal's jaws, so as to deprive it of its poison-fangs, he holds great rejoicings over his helpless foe; and, tossing it to the young monkeys, looks complacently at its destruction.

BAMBOOS.—Immense quantities of fine Bamboos are floated down the various rivers of the western coast of India. It is one of the riches of the provinces. They are ordinarily sixty feet long, and five inches in diameter near the root. These are readily purchased standing at five rupees per 1000, and small ones at three rupees and a half per 1000. Millions are annually cut in the forests, and taken away by water in rafts or by land in hackeries; from their great buoyancy they are much used for floating the heavier woods as Mutte (*Terminalis tomentosa*), and Biti (*Dalbergia arborea*), and piles of them are lashed to the sides of the Paltimars going to Bombay. The larger ones are selected as outriggers for ferry boats, or studding-sail booms for small crafts. In addition to the vast export by sea, it is estimated that two lacs are taken from the Soopah talook eastward. The Malabar Bamboo is much smaller than that of Pegu (*Bambusa gigantea*), which is eight inches in diameter.

MODE OF FLOATING TIMBER.—It is curious to see the clever management of the floaters, who are a distinct class of persons. Rafts are of all sizes, usually longer than broad, and the logs bound together by the stringy bark of various trees, and stout branches passing through the dragholes at right angles to the log. In the centre of the raft a small hut is generally made of thatch, or Bamboo lathes, covered with Palmyra leaves; in this the floaters are sheltered at night. It is not usually considered advisable to float logs when the river is at the fullest, as the raft is

apt to go over the bank and be stranded. Numerous logs may be seen high and dry all along the sides, and the following year the flood lifts them. At night, floats are brought to under steep banks, in deep water; they are then tied to the trunk of some adjoining tree; occasionally the banks fall in, and serious accidents occur.—(Dr. Cleghorn in *Scottish Gardener*.)

TO CORRESPONDENTS.

NUMBER OF BUNCHES OF GRAPES TO BE BORNE (C. A.).—Much depends upon the vigour of the Vine. Mr. Hoare's rule is founded on the circumference of the stem. If it is three inches, the crop may be 5 lbs.; six inches, 35 lbs.; nine inches, 65 lbs. If you deduct two inches and a half from the circumference of the stem you may allow at the rate of 10 lbs. per inch for the remainder. It is a safe rule to have half as many bunches as there are laterals.

HOENBY CASTLE (J. C.).—Mr. Richardson is the gardener there.

LIST OF GREENHOUSE PLANTS—NOTES OF TREATMENT, &c. (H. J. T.).—We will try and oblige you ere long, though at the risk of repetition.

BOILER FOR A SMALL HOUSE (B.).—A small conical boiler would, in your case, be best—such as Rogers'; and, if fed with coke, would annoy you with little smoke, and you would require no great height of smoke-funnel. By means of a damper, and a close ashpit door, the fuel will keep hot a long time. The next best would be the small retort of Thompson's, well secured with a damper. You could have two separate flows and returns, with a stop-cock on each; or one flow to a common cistern, from whence you could heat either department at pleasure. If you wish to heat both departments at once, you will need neither cistern nor stop-cock, if they are on a similar level.

SEEDLINGS.—Mr. Judd, of Althorp Gardens, sent us samples of a new seedling variegated Geranium, and one from the old *Unique*; also an *Azalea* and a *Petunia*. The variegated Geranium is after the *Golden Chain* in the leaves, and like *Tom Thumb* in bloom, and will be a first-rate bedder. The *Petunia* is just the same colour as the *Shrubland Rose*, with the eye not so white, but with a free, strong habit. This has always been a great want, all that breed being unsuited to many kinds of soil. Dr. Lindley said the *Marquis de la Ferte* would drive *Shrubland Rose* out of the garden; and Mr. Beaton said nearly the same thing, from seeing it in a pot; but he confessed, long since, that that was a mistake on his part, and the Doctor ought to have been equally candid. *Countess of Ellesmere* is no great favourite; and now this is the third of that breed after *Shrubland Rose*. The *Unique* seedling is a cross by the pollen of *Bagshot Park* Geranium, and is different from all the *Unique* seedlings that we have seen. It is true rose and purple, and there were twelve flowers in the tuess. The *Uniques* stand in the same relation to greenhouse Geraniums as the *Nosegays* do to the bedding sorts, and this is a lovely addition to them. The *Azalea* is a very large flower of great substance, a regular exhibition kind, and is cross between the *Gloria of Sunning Hill* and *Perryana*.

SOWING CYCLAMEN SEED—HYBRIDISING PELARGONIUMS (A Subscriber).—Sow the seeds of the Cyclamens as soon as they are ripe, in light, sandy loam mixed with a little peat and leaf mould, and plunge the pots in the shady corner of a cold frame, and keep them between wet and dry till the seedlings are up, some time in October. The seeds never sprout till the time it is natural for the bulbs to vegetate; and if they are not sown as soon as they are ripe, they take two seasons to grow, and seldom grow at all. Leave the seedlings two years in the same pots, and treat them exactly as you would old plants of them; then put each little bulb or tuber in a small 60-pot, and do them as you have done the parents, and good luck may follow them. Mr. Beaton says what you will get by crossing *Boule de Nègre* and *Lady Hume Campbell*, will be love's labour lost; but should you get that cross, no matter what it is, the first plant of it will be worth just one hundred guineas. But if you will buy the *Royal Crimson* and the *Model Nosegay*, and cross them, you will easily get into a new strain of pretty hybrid bedders, an entire new race; then get *Mrs. Vernon*, *Atrorubra* of Kew, or *Patrick's Nosegay*, which is the right name, together with the two kinds of *Fothergillii*, or old *Nosegays*, and cross them all with the *Royal Crimson*. You will soon learn as much as any of us. We are not quite practical enough just yet to give you reliable advice on crossing double *Petunias*, but we are studying; and as soon as we pass our examination, if we do not break down, you shall have something worth minding, and to work upon.

DISEASED CUCUMBERS (A Young Beginner).—We think if your Cucumbers were too dry last year, you have jumped out of the frying-pan into the fire this season. Unless the plants cover a large space, the immense watering must have thoroughly saturated them. If you had a good strong heat, and neglected to give air, not only in the day, but also at night, your plants would be in a regular vapour-bath; and in such dull weather as we have had since Good Friday to this 3rd of May, the leaves would have no opportunity of perspiring freely, and thus the young fruit would be stifled and glutted with moisture. That may be one reason; too rich compost may be another; and old soil a third. We would remove what we easily could of the loam and the leaf mould, and substitute sweet fibry loam, lightened with a little silver sand. If that did not give enough of strength, we should top dress with rotten leaf mould. We are inclined to think extra damp, and want of sufficient air—and perhaps coolness at the bottom—have had their influence; as these would be all aggravated by having the place filled with other plants. This few of us can avoid; but we should try to neutralise the effects as much as possible. We often act with our breathing, living plants as if we were to pack men, women, horses, cows, sheep, pigs, dogs, and birds, in one small place, shut the doors and windows close, and then expect all to be flourishing and happy, and nothing whatever of the results of a black hole of Calcutta. Here is a mine of thought well worth working. Meanwhile we will mention the requisites for nice, healthy Cucumbers in a frame:—Sweet fermenting material for bottom heat; temperature at roots from 80° to 90°; sweet, well-aired soils, rather light, and not loaded with much manure; not too much space for the roots to occupy, as that encourages luxuriance rather than fertility; atmospheric temperature from 60° to 65°, and in mild weather a few degrees more at night; from 65° to 70° and 75° in mild, dull days without sun; and with sun heat, provided a little air is given early,

allowing the heat to rise to 80° and 85°; giving water only as needed, according to the weather; and air as much as possible every day, and even a little at night, provided the state of the heat at command will permit it.

HYBRID RHODODENDRONS IN POTS (Constant Reader and Old Subscriber).—All the plants you name can be kept in pots for two or three years under the circumstances. The pots should be plunged to the rim, and the place be mulched, and abundance of water given regularly to the plants all the summer and autumn months, until the middle of October, and very little all the winter till March.

VENTILATORS (Inquirendo).—We decidedly prefer ventilators in the north wall, or by a small hipped sloping sash at the back, not only for the reasons you name, but also as a great saving in glass shattering, from moving the sashes. Provided you make your furnace large enough, there will be no difficulty in heating the two houses from one fireplace; but it is very likely the one flue may draw stronger than the other, and, therefore, the sluggish one must be assisted by partly damping the other. We foresee no difficulty under ordinary care.

SEEDLING GERANIUM (Mrs. Preston).—Your seedling seems a good variety of the *Salmon Geranium*; but it is too early yet to judge of such seedlings. The best we have of that strain is *Kingsbury Pet*, and *Countess of Deeline*. If you have these, compare your seedling with them, you will then be able to judge it yourself, as these are the only ones in competition with it. Mr. Beaton's address is Surbiton, Kingston, Surrey.

VINE SHOOTS DYING (A Subscriber).—We hardly know by your description what is the matter with your Vines. You should have sent a shoot with the disease. Probably your soil, dull days, and the lowish temperature, may have had something to do with it. A fresh fibry loam is the best for fine-flavoured Grapes; such soil being lightened with old lime rubbish and charcoal. If the Vines do not improve it would be advisable to take them up, and replant them in autumn. When we know more particulars we shall be glad to advise you. If there were no fruit to speak of we would not wait till autumn.

BRUGMANSIA KNIGHTII BUDS FALLING (M. F.).—The flowers of the *Brugmansia* are so massive and large, that they require a temperature of from 50° to 55° at night, and from 10° to 15° more during the day, to open them freely. Had your plant shown buds in July or August, it would have swelled them well. They were starved in winter. We would place the plant as much in the sun as possible, as we are almost sure that the same shoots that showed the buds in winter will show more as it grows. If it should not do so, set the plant out of doors in a sunny place in July, and then, most likely, it will soon bloom; but if not, refrain from giving much water in the autumn; prune it a little at the approach of winter, keep the plant secure from frost, and prune it back more in spring, and then the young shoots will show bloom freely. We expect, however, that you will have buds and flowers all the summer. This shrub drinks enormously in summer. In winter it should be kept rather dry when in a state of rest.

CHUSAN PALM (Idem).—The Chusan Palm grows moderately well in an exposed place north of London. It would grow quicker and look more graceful in a greenhouse. Loam and peat, with a little broken bricks, seem to suit it.

NAMES OF PLANTS (Wise).—Probably an *Ipomœa*; but the flower too shrivelled to be certain. (A Subscriber).—1. *Rhynchospermum jasmynoides*, Jasmine-like *Rhynchospermum*. 2. Too much injured to be recognised. 3. *Justicia coccinea*, scarlet *Justicia*. (T. W., Reigate).—1. *Linanthus Douglasii*. 2. *Pyrethrum erythrinifolium*. 3. *Griscia tomentosa*. No benefit rubbing the rust from the Grapes. (E. Copland).—Your shrub is one of the *Crataegus*, probably *C. Crus-galli*, var. *nana* of the *Cottage Gardener's Dictionary*. This I, as near as we can judge from so small a specimen, and without its proper leaves. If you doubt about it, send us another and a better specimen, and say whether spiny or not, and all you know about it. (Rev. W. J. Jenkins).—We presume—1, huc to mean the Cross-wort; if so, it is the *Lunaria biennis*, a very showy biennial plant at this season of the year. 2, puce, is a choice, hardy, herbaceous plant, *Pulmonaria virginica*, which dies down early; therefore, a hable should be kept to such a plant, so that it should not be lost or otherwise injured. 3, red, is *Corydalis bulbosa*. This, also, dies down early.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

- MAY 11th and 12th. SKIPTON (Yorkshire). Sec., Thomas Robinson.
MAY 25th and 26th. BEVERLEY. Sec., Francis Calvert, Surgeon, &c. Entries close May 10th.
JUNE 1st, 2nd, and 3rd, 1859. BATH AND WEST OF ENGLAND. At Barnstaple, Devon. Director, S. Pitman, Esq., Rumwell Lodge, Tannton. Entries close May 1st.
JUNE 6th, 7th, and 8th, 1859. GLASGOW. Sec., Robert M'Cowan, 17, Gordon Street, Glasgow.
JULY 1st, 2nd, 4th, and 5th. SHEFFIELD. Sec., Wm. H. Dawson, Sheffield. Entries close the 15th of June.
JULY 21st. PRESCOT. Sec., Mr. James Beesley, Prescott.
AUGUST 27th. HALIFAX. Sec., William Irvine, Holmfield, Ovenden, near Halifax.
OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. Sec., Geo. Griffiths, 7, St. Swithin Street, Worcester.
N.B.—Secretaries will oblige us by sending early copies of their lists.

BLACK HAMBURGH FOWLS.

THERE appeared in your most useful and instructive paper a short time since a letter from "RED ENSIGN," asking whether Black Hamburgs were a breed of fowls distinct in themselves? The question was raised in connexion with the great Brahma controversy; but as yet no one has answered it.

We have been told that they are most capital layers; and no one who has ever seen them will refuse to admit that they are also most beautiful fowls. The question is, Are they a distinct breed? "W. H., Exeter," states that he has manufactured Black Hamburgs from a Spanish cock and Silver-pencilled Hamburgs; and that, too, with success at Exhibitions. This would seem to imply that they are not a true breed, because they can be manufactured. We know that Black Cochins can be manufactured; but we also are told, on the best authority, that there is no such thing as a really black Cochin cock. Consequently, in their case, we could not depend upon like producing like if we bred from Black Cochins; and this, I believe, is the reason why the Committees at our Shows have excluded Black Cochins from their prize lists. Now, is this the case with the Black Hamburgs? "RED ENSIGN" says that they breed true. This would not be the case if they were a merely manufactured breed; for then the progeny would in course of time throw back, and there would be the unmistakable signs of a cross having been made at some time or another. I hope that some Black Hamburg breeder will give us the benefit of his experience on this subject. The Brahmas have had a severe drilling of late, but still they came well out of it; and they deserve all encouragement, for a more useful class of fowl does not exist. They are far superior to the Cochins in their egg-producing qualities in the winter, and they are better mothers; and where we find Cochins were kept formerly we now find that the Brahmas have superseded them, because they are more profitable.

But the question of "RED ENSIGN" need not be confined to whether Black Hamburgs or Brahmas are a distinct breed. It would be hard indeed to say which of our breeds of poultry was a real, separate, distinct breed of itself. Take our most useful fowl for all purposes—the Dorkings. They do not infallibly breed true. Select your cock and hens with rose combs as carefully as you will, and behold a single-combed chicken will often appear; and *vice versa*, a rose-combed chicken from single-combed parents. How is this? The parents throw back: but to what do they thus throw back? There is a stain somewhere in this our national fowl, as I might term it. In fact, the Dorking does not breed true: and if, as Mr. Botham and "RED ENSIGN" assert of the Brahma and the Black Hamburg, they do breed true, why should not they be acknowledged as a distinct breed? I have no doubt of the Brahma being a distinct breed; and I shall be obliged if any of your contributors can enlighten me on the subject of the Black Hamburgs. Many persons have said they are a strain of the Black Spanish. If they are, they are a great improvement on the Spanish: for, though the Spanish are a remarkably fine and handsome class of bird, yet still they are an over-rated class. Their eggs are large, to be sure; their flesh delicious for the table; but they are not good winter layers, and they are bad sitters also. Now the Black Hamburgs are, as all Hamburgs are, good winter layers. Their flesh, too, is excellent for eating; and if people like to keep a black breed of fowl, I think that the Black Hamburgs are far superior to the Black Spanish in a profitable point of view. Unquestionably for general purposes nothing can exceed the Dorking. For winter layers the Brahma and Cochin are the best: but for egg-producing qualities nothing can touch a Hamburg; as witness the return given in your periodical some time back by "SILVER-PENCILLED HAMBURGH" of having obtained 774 eggs from four Silver-pencilled Hamburgs in the course of the twelve months of 1856.

I hope that somebody will clear decks for action with "RED ENSIGN." He has fired his gun, and run up the signal, "Are Black Hamburgs a distinct breed?" "England expects every man to do his duty." "RED ENSIGN" has done his duty to the poultry world by asking this question; and no one will read the answer with greater pleasure than your well wisher—CHANTICLEER.

PINIONING WATER FOWL.

OUR attention has been drawn by "SHOVELLER," to an assertion by Mr. Castang, in a contemporary paper, that "water fowl breed more freely when unpinioned; that it is a disadvantage, and prevents their breeding for many years to pinion them." We are happy to give "SHOVELLER" an answer. If a water fowl is not pinioned, it is always lost in the winter, when wild birds come, and all tameness is forgotten by those that have, perhaps, fed from the hand during summer. It is their nature. Even birds bred on the water *tame*, will do so. It is, in fact, im-

possible to keep them full-winged, and equally impossible to catch them to cut their wings. We have known them breed in April when pinioned in February.

WARNING TO BEE-FEEDERS.

THE following may be useful to bee-keepers relative to a mode *not* to be adopted to insure their bees having food for winter consumption:—I had a stock last autumn which appeared lightish. To make sure (as I thought), I put twelve pounds of comb into a large cap nicely set up with sticks, and put it on to the top of the hive,—a flat-topped straw hive,—all straw, *top and bottom*, with a four-inch hole in the top. At the end of February all the bees were dead, and scarcely any of the honey in the cap eaten. The hive was full of dead bees without any honey, and showing they had died at a time when it was too cold for them to ascend for food, even through a four-inch hole. I could scarcely have imagined it possible, though a bee-keeper of twenty years' standing. Can any other cause of their death be suggested? The hive was immensely strong in population, and good, and dry, and all right.—E. L. R.

[The mode of feeding, as you detail it, would have answered, had you resorted to it earlier. The hive, being "immensely strong in population," but in weight "lightish," ought to have had a good supply of food before the cold weather set in, when the bees would have removed it from the super into the combs of the stock-hive, and it would then have been available for the subsequent wants of the family. As you managed matters by leaving open the "four-inch hole" all the winter, the necessary genial warmth escaped, and this, coupled with starvation, led to the destruction of the stock.]

HIVE RAVAGED BY THE GRUBS OF THE WAX MOTH.

A HIVE of bees, which, by the way, was the first I ever had seemed to do very well, passed the winter without my perceiving anything extraordinary, and began to work about a month ago, very strong; the bees being very active and carrying abundance of pollen. Since then, it has gradually become weaker, and has carried out much dead brood, in different stages of perfection. Till last week, there was scarcely more than one or two bees to be seen at a time, and very rarely one with any pollen. They seemed only to come out, fly about the mouth, and then went in again.

In looking into the mouth, I saw several large grubs, or maggots, walking about, of about an inch long, of a drab, or stone colour, with darker heads.

I procured a new hive, and taking the old hive off its board, turned it upside down, and placed the new one upon it, wrapping a table-cloth round both to prevent the escape of the bees, and then struck the bottom one for some time with a small switch. I waited about four hours, when, on looking, it seemed that there were a great many bees in the new hive, and still a great many in the old one amongst the combs. I then put the new hive in the place of the old one, and the old one upon a board beside it; but in the morning the bees went all into the old hive, so I considered I had not got the queen out. I have left them in that state till I have got your opinion, if you will be kind enough to give it me in your following number.

I found a great many bees in the hive (a common straw hive); but the new hive, quite empty, seemed to be quite as heavy as the old one with both bees and combs.

One of my neighbours had a hive that just died away the same way as mine; and when it was turned up, all the combs were covered—indeed, the hive was full of a sort of silky web, with passages in which were hundreds of the same sort of grub that I saw in mine.

Since turning mine up, I have fed them, and it seems to have given them more life—they are much more active.—H. W.

[Your stock of bees has been destroyed by the grubs of the wax moth, *Tinea mellonella*. The only chance you had of preserving the family was by the process of driving, as attempted by you, into a new hive. If you should succeed in removing the queen bee, you might, perhaps, even now, establish a new colony, placing it on the original stand, previously thoroughly cleaned. The old hive and its contents must be destroyed, being utterly useless for the future; and the sooner the better, before the moth grubs come to maturity.]

WEEKLY CALENDAR.

Day of Mnth	Day of Week.	MAY 17—23, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon R. and S.	Moon's Age.	Clock after Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
17	Tu	Witsenia partita.	29.956—29.928	60—53	S.W.	.10	8 af 4	45 af 7	21 af 9	15	3 52	137
18	W	Witsenia ramosa.	29.912—29.858	67—42	S.W.	.04	6 4	46 7	23 10	16	3 51	138
19	Th	Witsenia corymbosa.	29.962—29.883	62—37	S.W.	—	5 4	47 7	14 11	17	3 49	139
20	F	Zichya coccinea.	30.078—30.002	72—41	S.W.	—	4 4	49 7	50 11	18	3 46	140
21	S	Sun's declin. 20° 8' N.	29.904—29.722	73—45	S.W.	.08	2 4	50 7	morn.	19	3 43	141
22	SUN	1 SUNDAY AFTER EASTER.	29.821—29.785	67—44	S.W.	—	1 4	52 7	17 0	20	3 39	142
23	M	Leucopogon juniperoides.	29.819—29.704	66—44	S.W.	.43	iv.	53 7	36 0	21	3 35	143

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 65.8° and 43.8°, respectively. The greatest heat, 86°, occurred on the 17th, in 1833; and the lowest cold, 29°, on the 18th, in 1838. During the period 120 days were fine, and on 94 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

ATTEND carefully to the stock of plants for summer and autumn decoration, and do not allow them to suffer for want of pot room and water.

AZALEAS.—Continue to encourage all that have flowered by timely potting, syringings, and applications of weak liquid manure.

CAMELLIAS.—Introduce a gradual declension of artificial heat amongst all that have completed their growth. A curtailment in the supply of water, giving merely sufficient to keep them from flagging, will induce the production of blossom-buds.

EPACRIS.—Repot with a pretty large shift the early-flowering sorts that have freely commenced their growth. Use good fibrous heath soil, rejecting any of a spongy or greasy nature. Such plants, for some time after being newly shifted, require particular attention in watering, that the soil may not become soddened. Let the plants be placed in a cold pit, and be slightly shaded during bright sunshine. The stopping or pinching out the points of strong shoots must be regularly attended to during their growing season, to establish a uniformity of sturdy growth.

HEATHS and NEW HOLLAND PLANTS.—All that have flowered, and have made their season's growth, may be removed to cold pits, or frames, to allow those that remain, and are promising to flower, more air, sun, and light.

STOVE AND ORCHID-HOUSE.

Keep up a liberal supply of humidity, with ventilation, at favourable opportunities. The plants here should now be growing very freely, and should, therefore, receive frequent attention as to stopping, training, &c. Keep them properly accommodated with pot room, and allow them all the sunshine they will bear without scorching; also, allow them sufficient space for the development of their foliage. Plenty of moisture is now requisite to encourage a free growth in Orchids, to get their pseudobulbs firm, well nourished, and ripened in good time. Free ventilation in favourable weather and a slight shading in bright sunshine are also requisites for their healthy growth.

FORCING-HOUSES.

CHERRIES.—When the fruit is ripening, air to be given freely, even to the drawing the lights off completely in favourable weather. Fires may be discontinued altogether, unless the nights are very cold.

FIGS.—Give them plenty of water in all their stages of growth; discontinue the use of the syringe during the ripening process. They frequently require attention in stopping all long young shoots.

MELONS.—If there is a sufficient depth of soil for the plants, they will not require any large supplies of water after the fruit is swelling off; but it will be necessary to sprinkle the plants overhead, and to shut up early every

fine afternoon with a good heat. Lay the fruit on a tile or piece of slate.

PEACHES.—When the fruit is swelling off, or beginning to ripen, admit air freely in favourable weather, even to the drawing off the lights entirely, so as to admit a free circulation and the direct influence of the sun, by which flavour and colour are best attained. Continue to stop all very-luxuriant shoots, and thin out the young wood. Some persons lay in plenty of young wood to select from in winter pruning; but fruit-bearing wood, regularly disposed all over the tree, is best attained by the judicious and successive thinning of useless shoots during their growing season. Continue to tie in the shoots of the late houses.

PINERIES.—When the repotting of the plants has recently taken place it will be necessary to shade for several hours, during bright sunshine, for a few days; but for the general stock shading should be dispensed with as much as possible—as short, stiff leaves and sturdy growth are best attained by judicious airings and humidity. Do not water much at the root immediately after repotting. Maintain a brisk bottom heat to the successive plants. Admit plenty of air during favourable weather.

VINERIES.—As the fruit in the early houses become coloured, it is advisable to remove all superfluous or rambling shoots; but to retain and to preserve with the greatest care the principal leaves—as the good quality of the fruit and the healthy condition of the tree for the ensuing season will depend upon the number and healthy state of the principal leaves.

WILLIAM KEANE.

MOSS GARDEN AT FOREST HILL.

I HAD seen, in 1824, the walks in the old botanic garden at Brodie House, between Nairn and Forres, completely covered with *Spergula saginoides* under the name of *Sagina procumbens*, and a very old man who was gardener there in the time of Mr. Brodie, the Scottish cryptogamist, after whom the genus *Brodiaea* was named, told me that if that gentleman had lived long enough he intended to do some wonders with that plant. I recollect very well, in the pride of my own prospects, to have thought, "Pity you were not dead with them, for being so stupid as to think it worth mentioning that any credit was due, for a fancy, to allow the walks to be covered with that weed." Brodie's plant was the one I had grown at Shrubland Park, which I called the "carpet plant;" and I kept to the same name for it. I had it from the old botanic gardener at Brodie House; but *Sagina procumbens* is a very different plant—being an annual.

In May, 1831, I saw paths covered with *Spergula* in the woods of Deepdene, near Dorking; and since I have been to Forest Hill I have been trying a comparison in my mind between *Spergula saginoides* and the "Grass which needs no mowing"—*Spergula pilosa*; and I find that the two do not tally, as I first thought. But I must

record it as a very remarkable fact, that Mr. Brodie—a clever man in Mosses and other Cryptogams—"if he had lived long enough," would have made something of the kind which Mr. Mongredien, a gentleman of similar taste, has actually done so many years afterwards. We never hear from Mr. Grigor, the nurseryman at Forres; else we might ask him if any traces of this fancy are now to be seen at Brodie House; and one does not like to trouble gentlemen in the neighbourhood, such as the proprietors of Altyre and Delvey, who have the best gardens thereabouts.

The thick bushy evergreen, which I mentioned as looking like *Bridgesia*, in Mr. Mongredien's experimental bed is *Griselinia litoralis*. I did not spell it right in the report at page 75. Two of the Scotch Lycopods in the rockwork I intended to write about for a long while; but, seeing such a collection as this, I was at the end of my tether, and brought to a stand-still; and all I could do was to ask Mr. Summers to give me a general idea of the collection, and the principal mode of management, for THE COTTAGE GARDENER: and through his kindness here it is.

Thousands of amateurs who have little space for gardening could have a rockery for rare and delicate alpine plants, low Ferns, the commoner Mosses, and all the odds and ends they could pick up, as a sort of beginning; and when they come to understand the subject there is no end to the interest they would derive from it. Mr. Mongredien has his bedding plants, his exhibition plants, his orchard-house plants, and the new and rare in all the classes of plants: but, from personal experience, I could venture to affirm that he derives more real pleasure from his cryptogamic garden than from all the rest put together.

The experience I speak of was my first start, as head gardener, with one of the best self-taught practical botanists of the age; it was then I learned what little insight I have of bulbs. Mr. Summers, the head gardener at Forest Hill, is just such another man as I was thirty years back in head, hands, and circumstances; and although it is much easier to rise in gardening now than it was then, yet it is much more difficult to do, if you can understand how that can be. An idler may now rise easily in the knowledge of our craft by good, sound, practical books; but the competition between clever heads is now ten times more than it was then. Therefore a man may be almost as wise as Solomon, and have nine chances against his succeeding to a higher situation than he now holds.

But let us read Mr. Summers' paper on the Moss garden. Who knows but he will have to write a "Moss Book for the Many" yet?

"In Mr. Mongredien's grounds at Forest Hill a small piece of rockwork has been laid out as a Bryarium; and, although it has only been planted six or seven months, the experiment has been sufficiently successful to refute the common notion that the artificial cultivation of most of the Cryptogams is beyond the skill of the horticulturist. In Wardian Cases they have already been grown on a small scale; and an interesting account is given, in vol. ii. of the "Journal of the Linnean Society," of a collection of Mosses so grown by the Rev. H. H. Higgins. Several thrived very well, whilst others either languished, or died outright. But the writer is not aware of any previous attempt to cultivate Mosses, Lichens, and Hepaticæ in a garden by themselves, and thus to obtain a collection of living specimens of a tribe so exceedingly interesting and so beautiful, but yet so little known except to the botanist.

"Mr. Mongredien's collection is far from complete; and he is taking measures to increase it considerably. But, for the short time he has been at work, a good deal has been done. As every species in his collection is marked on a small zinc label, the enumeration is easily made. The mossery at present includes about 160 species of Mosses,

thirty of Hepaticæ (chiefly *Jungermannias*), sixty of Lichens, and four of Lycopods.

"The rockwork is so arranged, as to offer as great a variety of habitats as possible. There are shady nooks, exposed hillocks, wet banks, small swamps, and every sort of aspect, but chiefly the north, which Mosses mostly affect. By these means each species receives as nearly as possible the treatment that is most congenial to it; and the result is, that the plantation, with few exceptions, is in the most healthy condition.

"The general impression it produces, even at first sight, is delightful. The freshness, the varied tints, the rich covering spread over every stone, all affect the eye most agreeably. But a closer and more minute inspection reveals an infinite multitude of beauties in the growth, the leaf, and the fructification of these minute plants. With a lens in hand, days might be spent in this little spot without exhausting the objects of interest which it presents.

"Amongst the Mosses which seem most to luxuriate in the spots here allotted to them may be quoted—*Bryum julaceum*, *alpinum*, and *capillare*; *Hypnum denticulatum*, *undulatum*, *purum*, *splendens*, *Schreberi*, and *cupressiforme*; *Hookeria lucens*; all the species of *Mnium* and *Polystichum*; *Racomitrium canescens*, *Leskea sericea*; several *Tortulas*; *Bartramia fontana* and *pomiformis*; *Dicranum Scottianum*; *Weissia controversa*; *Grimmia Donniana*, *pulvinata*, and *leucophaea*, &c.

"Several of the *Jungermanniæ* are doing remarkably well, and some have flowered abundantly, such as the *J. pumila*, *bicuspidata*, *pinguis*, &c.

"The progress of the Lichens cannot yet be reported upon; as, from their nature, a longer time is required for their development. The four species of *Lycopodium* are the *clavatum*, *selago*, *alpinum*, and *inundatum*, all of which appear to be doing well.

"The most important point in the cultivation of Mosses, after the proper selection of site and soil, is (with by far the greater number of species), not to allow them to get dry. All thrive better for copious irrigation; and most of them will not live without it. The mossery at Forest Hill is watered freely three times a day, except in rainy weather; and when dry winds prevail, which cause rapid evaporation, an additional sprinkling or two are given. This is the most troublesome operation connected with Moss cultivation, and may prove an obstacle to mosseries becoming so common and general as they might but for this expenditure of time and labour. Otherwise, the small backyard of a cottage might suffice for the cultivation of fully half of the known species of British Mosses, of which the total number described in Wilson's "Bryologia Britannica," is 450; and the Palm-house at Kew does not afford, by any means, the same number of interesting subjects for observation as would that little backyard, if so cultivated.

"Besides the Cryptogams, and mingled with them, but only so as either to be in keeping with them, or to afford them shade and protection, Mr. Mongredien has planted the rockery with a variety of other plants and shrubs. On the highest parts are a few dwarf Pines, such as the *Mughus, inopus*, &c.; lower down hang some of the trailing Junipers, among which is a fine specimen of the *J. tamariscifolia*. A variety of Ferns (both British and half-hardy exotics), are interspersed in appropriate places. A good specimen of *Daphne cneorum* crowns one of the hillocks, and is now a mass of blossom. Amongst the Mosses grow Saxifrages, Sedums, a few British Orchids, *Pyrola*, *Paris quadrifolia*, *Linnaea borealis*, *Sibthorpia*, *Veronica repens*, *Thymus languinosus*, and *Corsicus*, and a number of other small and trailing plants, which assist in covering all available space with vegetation, and by contrast of foliage and flower heighten the general effect.

"The entire area devoted to the mossery is only a few square yards; and yet a botanist might probably enume-

rate not far short of 450 species of plants crowded in this small space. It is from this consideration that the present notice derives its chief interest. The necessity for a large piece of ground in order to make an interesting garden is generally overrated. A small plot, laid out with taste and discernment, and made the most of by a judicious selection of plants for cultivation, may abound with objects of interest and utility. Mr. Rivers has made large orchards superfluous; Mr. Ward has taught us what can be done within the limits of a glass box; and we might profitably imitate the Chinese, if not in dwarfing our trees, at least in making every little nook and corner available for cultivation."

D. BEATON.

PINE APPLE CULTURE.

(Continued from page 49.)

I WILL here allude to a few of the simpler matters; as I find that, without going more into detail than would be desirable, I can add but little to the remarks already made. What follows will embrace hints in general, and their application to our correspondent's case in particular.

1. PROPAGATION.—This is generally effected by the crowns of the fruit—gills coming from the fruit-stem; but chiefly from suckers coming from the main stem and roots of the plant. Those that come from the roots, or even much below the collar of the plant, are not so much esteemed as those that come from the stem farther up and peep at first from the axils of the leaves. We always preferred such suckers; and the larger they were the better we liked them. A stout side-twist must be given them when removing them, or the base would be broken, and thus the young plant rendered next to worthless. Of course, when the old stools are kept, the suckers must merely be thinned, and earthings up given to the old plant, that the young suckers may cater for themselves with their own roots, and also derive all the strength possible from the old stem. Under the common method, however, the suckers are dressed after being taken off by having any rough piece at the end, where it joined the old plant, cleanly cut off, a few of the short stumpy leaves removed, and then allowed to have the wounds all dried and hardened by lying for a couple of days, or so, in a shady place. Crowns and gills are treated in a similar manner. They are then potted in pots in proportion to their size, or planted out in a hotbed. If potted, the pots should be small at first rather than otherwise, and the soil squeezed tightly about them; and, though the tops should be gently dewed, and a warm, moist atmosphere maintained about them, the soil should be dry rather than wet until the roots are working in it freely; and as they get to the sides of the pot a fresh shift should be given.

2. SOIL.—Any fresh fibry loam, rather rich than otherwise, and rough and lumpy, will grow the Pine Apple well; though there are some loams—such as that at Norwood, Roehampton, and Berkhamstead Common—greatly famed for the purpose. The great thing is to use it in such a rough state that air and water pass freely through it, and then squeeze it together so tight, when neither wet nor dry, but dry rather than wet, that the air does not enter so easily as to dry the roots too quickly. The top spit of a common, where the grass is small and like needles, is the best for the purpose; and if that spit is not more than two or three inches deep, all the better. This should be laid in narrow ridges, to sweeten, for a twelvemonth before using; but the sweetening should be secured without wasting the fibre, by keeping it dry and having several openings through it: by drain-tiles, or faggots, to let the air pass through it easily. This may be cut down and broken up for small plants, with a little addition of leaf mould; but, for older plants in large pots, the most of the fine should be sifted out, and the compost used in a rough state. For a six-inch pot there

should not be many pieces larger than Windsor Beans; for a twelve-inch pot many pieces should be as large as Walnuts. A little leaf mould, or rotten cowdung, may be added as manure; but I prefer giving strength by manure waterings. If the soil is not extra fibry and open it will be benefited by pieces of charcoal mixed with it.

3. REPOTTING.—This should be done whenever the roots fill the pots, until the plants are placed in the pots in which it is designed to fruit them. Much difficulty is experienced by a beginner from the many diverse directions as to disrooting Pine plants when shifting them. The matter will be simplified if he will make it a rule of action never to destroy or cut away a root so long as that root is sound and healthy. Another rule should be, never to repot a plant from November to the middle of February or thereabouts, unless there is a necessity from the roots being injured, and the soil becoming unhealthy by being soaked from drip or other causes. In either case, no time should be lost in repotting a plant in fresh, healthy soil; and, if the roots are gone, treating it as respects pot-room much as would be done with a sucker, preferring in all such cases under to over-potting. We disapprove repotting in the dark days of winter, because the check given will be likely to be more injurious than the shifting would do good.

In order to make the matter plainer we will suppose two different cases. If our correspondent obtained plants in their fruiting pots—say in August or September, just potted—then, if all were right, these plants should require nothing but keeping them slowly growing until it was desirable to throw them into fruit. Then some of the surface soil should be removed, and a fresh surface given; and if the plants were very bushy, a lower leaf or two might be removed. The temperature should also be gradually raised in ten days to as many degrees on the average, and moisture at the roots, and vapour in the atmosphere, given in proportion. These operations would require to be seen about in February and March, if the fruit were desired in August and September; and at the end of November and the beginning of December, if wanted by the end of May and the beginning of June. The first-supposed time would be attended with much less trouble and expense, because the sun would do so much of the extra work required. None of these but unhealthy plants would require repotting; and that would, in general, either retard or injure the fineness of the fruiting.

But, on the other hand, supposing the plants were received as suckers in July, were put in small pots, and placed in a sweet bottom heat; had filled their pots by September, and just received a small shift without breaking the balls, and after the pots were well drained. These pots were getting well supplied with roots before the end of October, and the stimulus to growth being reduced in proportion to light, the chief care was to keep all right, and especially the roots, by not allowing them to suffer from drought, or to be rotten with wet. At the beginning of March—soil previously being well aired and heated—the plants were examined. These, strong and robust, with fine healthy roots filling the whole ball, should merely have the points of their roots gently disentangled, and a little of the more exhausted soil removed, and be transferred at once to a larger pot. Owing to the time the plants stand in the same soil, a proportion would require to have a large quantity of the old soil carefully removed, but the roots preserved uninjured; and the strongest of these should have the smallest shift larger, and the weakest be transferred again to pots of the same size they formerly grew in. From none but those with decayed roots would we think of disrooting and commencing again afresh. These plants, if all went well, would require potting again in June, without breaking the ball farther than disengaging the points of the roots; and then, by the same mode of potting, be trans-

ferred to their fruiting pots in July, August, and beginning of September: the sooner the plants are fit for this, the sooner may they be expected to fruit—that fruiting, just as in other plants in pots, depending greatly on the maturation of the plant and the pots being well filled with roots. The plants may thus, in the course of a twelvemonth, pass from 48-pots to twelves and eights. After thus getting into their fruiting pots, it is especially necessary that no severe checks be experienced; otherwise the fruit may refuse to come, or may come small and deformed, or a mass of suckers may show themselves. Pine growers like the fruit to show before many of these suckers make their appearance.

4. TEMPERATURE.—This has been already indicated. The great thing is to give heat enough to prevent stagnation of growth, and, at the same time, proportion it to the light, so that the tendencies to mere expansion without consolidation may be counteracted. Thus, in winter, a good average night temperature would be from 58° to 62°; and from that to 65° and 68° with a little sun, to 75° and 80° with bright sun during the day. In summer, from 65° to 73° at night, and from 80° to 95° during the day in sunshine. The bottom heat should range from 75° to 80° in winter, and from 80° to 95° in summer. As already mentioned, when it is desired to start into fruit, the temperature and moisture should be gradually increased. Bottom heat is secured by many means—such as tan, dung, leaves, and hot water; and top heat is also secured by as many modes. Young plants especially luxuriate in dung heat, and will stand much more ammonia than plants in general can do. The steam that would kill other soft-leaved plants will not injure the Pines. In all such modes of heating by dung, care must be taken against too much bottom heat, and too much steam and vapour in winter. A pigeon-holed pit for linings is the thing in summer; but a close-walled one is best for winter, as much steam, or vapour, inside would keep the plants in a shower-bath, and, there being little sun, to dry them, the soil would get saturated. A dry heat, even with dung linings, may easily be procured if the walls are close.

R. FISH.

(To be continued.)

HORTICULTURAL SOCIETY'S SHOW.

ST. JAMES'S HALL, 12TH MAY.

A VERY good Show indeed for a London Exhibition; but, as compared with a Chiswick-garden fête, a mere fleabite. The arrangement of the Show was put on the shoulders of Mr. Edmonds, of the Duke of Devonshire's garden at Chiswick, at the eleventh hour; and, as you may well suppose, the abilities of one of our best practical gardeners on the spur of the moment, though taxed to the utmost, left nothing to be wished for,—all the plants were arranged just as all the ladies of taste in the country will have their conservatories arranged for grand parties. The arrangement could not have been carried out one quarter so well at Chiswick in detached tents.

In St. James's Hall people may learn a great deal more about the proper placing of plants at home than they ever could do at Chiswick; and, believe me, that subject is just as far behind now as the proper planting of flower-beds was ten years since. Everyone who is connected with country Shows between Exeter and Dingwall should see one of these gatherings in St. James's Hall, and study the way the different families of plants are disposed of, so as to give the best effect as a whole.

The Secretary of the Ross and Cromarty Horticultural Society, A. Smith, Esq., solicitor, Dingwall, is kind enough to forward to me the schedule of that Society every season, to see the progress of the craft in the far

north; and we have nothing in England on a better footing; and the only hint I can give to the Committee, and to all such officials, is, "Get up to London, and see the glories of Chiswick in town, copy the arrangement, and show the same at your own Exhibitions."

The orchestra in St. James's Hall is at one end of the room, and is in the form of a half-moon in front, with a great depth in the middle, where the organ stands. The whole of that large space was occupied by one collection of mixed plants from the Messrs. Fraser, of Lea Bridge Nursery, except the two flank plants, one at each corner, or horns of the moon, from Mr. Gaines. In advance of that collection, on the platform for the chair, stood two grand match plants of Wellingtonias, and a specimen of the Holly-leaved Olive from Japan from Mr. Veitch, of the Exotic Nursery.

In front of that platform is a half-circle stage, in two steps. The upper step was filled, in the middle, with six of the most magnificent Roses ever exhibited, from Mr. Lane, of Great Berkhamstead; with a collection of Orchids, on the right, from Mr. Wooley, gardener to J. B. Ker, Esq.; and another collection of new or rare plants from the Messrs. Fraser.

Between the Roses were six handsome Amaryllids, from Mr. Gaines; and on the step, or stage, in front of the platform, was a rich collection of rare things in dwarf plants from the Wellington Road Nursery.

The whole of one side-table, the right-hand side as you entered the Hall, was filled from end to end with a magnificent collection of mixed plants from Mr. Veitch. The opposite table was filled with collections of mixed plants from Messrs. Henderson, Pine Apple Place Nursery. Mr. Standish and the Messrs. Jackson, of Kingston; also, with a collection of Ferns from Mr. Hally, of Blackheath; and a collection of fine-leaved plants from Mr. Young, gardener to H. Stone, Esq., Dulwich.

At the east end of the Hall stood the best stand of all; in the centre, a stand for comforting the inner man with "the mercies of life," as Sandy MacPharlane said when they upset his porridge in "the Castle of Loch Leven." On each side of this, and a little in advance of it, stood two collections of Rhododendrons, one the yellow kinds from Mr. Lane; and the other of mixed kinds and Azaleas from Mr. Ivery. In the rear of this group were two large basketfuls of two kinds of variegated Geraniums from Mr. Hally—his *Burning Bush*, and one called *Scintillatum*. In front of the yellow Rhododendrons were a lot of cut-flowers of Azaleas from Mr. Ivery, and another lot of cut-flowers of Pansies from Mr. Bragg, of Slough.

The centre table was the best of the arrangement; and if Dr. Lindley could have had his own way, as seven or eight years back, this part of the Show would have been as plain as Betty Martin; but a collection of beautiful full standards of the Chinese Azaleas from Mr. Lane made it a grand thing. Along the whole centre, between each pair of these standards, were three pots of dwarf Roses; and there was a row of the same style of Roses on each side of the centre row—say, from fifty to sixty dwarf Roses—and a row of standard Azaleas in the centre. The first standards of this fashion were shown at Chiswick by our Mr. Appleby; and I recollect, as if it were but yesterday, the rage the Doctor was in, and the runnings he had hither and thither, looking after Mr. Appleby to knock his head off for daring to bring "fly-flappers" to a Chiswick Show! You must recollect how we got up the steam in THE COTTAGE GARDENER in favour of that very style; and now the Council took our part, and made room in their schedule for two sizes of these very "flappers."

Well, all round the Roses stood the fruit. A fine collection from Mr. Webber, of Covent Garden; so many in pots from Mr. Ivison, of Sion House; nineteen or twenty Pine Apples, fourteen dishes of Strawberries, fourteen of Grapes, four or five of Cherries, three or four of Apples,

as many of Pears, some Oranges, Citrons, Figs, Litchee Ground-nuts (*Arachis hypogæa*), Lapucia Nuts from Mexico, but I forget their patronymic; Cocoa-nut, with a slice of the shell cut out to let us see the kernel; and a new and most beautiful way of dishing a Shaddock for the dessert by Mr. Webber, of Covent Garden. Every man in Parliament, and all the country-party, who have not seen this new dish, must go to Mr. Webber and learn the move. All the rind is peeled off a monstrously large West Indian Citron; and the "flesh" is held together by ribs and a thin film, through which the inside of the Citron shines again. It is set on a flat dish, with its own peel under it, and a little peel on the top, and some other fancies. The whole looking like a small wedding-cake, or something that way.

Among the fruits were some fine bunches of *Black Hamburgh* Grapes from Mr. Hill, Keele Hall, and Mr. Frost, of Preston Hall, the latter of whom was the successful competitor. The basket of *Sir Charles Napier* Strawberries from Mr. Smith, of Richmond, was universally admired, and was by far the best exhibition in that class.

To set off the dessert, Mr. Ivison sent twelve heads of most magnificent blooms of the large *Rhododendron metropolitanum*, from the large conservatory at Sion House. Another good hit. One whorl of the top leaves to each truss in a glass of water, set among fruit-dishes, had a happy and novel effect. For all this I shall give the first place to the winners of prizes for fruit, before we examine the plants in detail:—

THE BEST COLLECTION OF FRUIT.—First, Messrs. Webber and Co., Covent Garden.

PINE APPLES (large sorts, not *Providence*).—First, Mr. Joseph Gillham, Isleworth. Second, Mr. Davies, gardener to J. Dixon, Esq. Third, Mr. R. Turnbull, gardener to the Duke of Malborough, Blenheim.

PINE APPLES (*Queens*, single specimens).—First, Mr. Page, gardener to W. Leaf, Esq., Park Hill, Streatham. Second, R. Crawshaw, Esq., Cyfartha Castle, for *Moscow*. Third, Mr. Jos. Gillham, Isleworth.

GRAPES (Black, three bunches, in baskets).—First, Mr. Frost, gardener to L. Bett, Esq., Maidstone. Second, Mr. Hill, gardener to R. Sneyd, Esq., Keele Hall. Third, Mr. Tillyard, Heckfield.

GRAPES (White, three bunches, in baskets).—First, Mr. Chalmers, gardener to Lord Southampton. Second, Mr. Tillyard.

CHERRIES (in single dishes).—First, Mr. Edward Shuter, gardener to the Earl of Wilton. Second, Mr. John Fleming, gardener to the Duke of Sutherland, Clevedon. Third, Mr. G. M'Beay, gardener to R. Ellison, Esq.

STRAWBERRIES (two dishes, distinct sorts).—First, Mr. F. W. Park, gardener to G. H. Vernon, Esq., Grove Hall, Retford. Second, Mr. John Clark, gardener to the Earl of Darnley. Third, Mr. Robert Turnbull, Blenheim.

STRAWBERRIES (single dishes of *British Queen*).—No entries.

STRAWBERRIES (single dishes, not *British Queen*).—First, Mr. R. Smith, market-gardener, Twickenham, for *Sir C. Napier*; very fine. Second, Mr. F. W. Park, Grove Hall, Retford. Third, Mr. Ivison, Sion House.

MISCELLANEOUS.—First, Mr. Sparkes, gardener to C. R. Collins, Esq., Hele Lodge, Collyington, for three Melons. First-class certificate, Mr. Monro, Colney Gardens, Barnet, for a seedling Cucumber; Mr. Ivison, for Strawberries in pots; Mr. F. W. Park, for *Beurre Rance* Pear; Mr. John Fleming, Clevedon, for Figs; Mr. Fryer, gardener to R. Crawshaw, Esq., for *Tom Thumb* Peas.

The plants from the Messrs. Fraser consisted of flowering, rare, and fine-leaved kinds. In front, across the curve of the half-moon, stood a row of dwarf, bushy Azaleas—the tallest in the centre, and the rest falling in gradation to each end, or corners, or horns of the half-moon. Among them was a kind—the white *Azalea Indica*—which was never before exhibited at the Horticultural Society. It is remarkably sweet, and scented the whole front of that part; it is a white and primrose. Behind this row was another of standard Azaleas, the tallest, also, in the centre; and, behind these, all sorts were placed in match pairs from the centre—all but one large yellow *Cytisus*, which stood too much to the right, as there was not a match for it. *Viburnum plicatum*, low, spreading, and one sheet of snowball, Guelder-Rose-like blooms. What a charming plant when done well! It is one of Fortune's plants from China. *Lomatia silaifolia*, a fine, fern-leaved-like plant. *Thyrseanthus rutilans*, in good bloom. A large white columnar *Crinum* of the *Asiatium*

section, with two flower-scapes. *Eugenia Ugni* in fine bloom. Fancy Begonias, *Rhododendrons*, Azaleas, Palms, Ferns, and many fine-leaved plants. The two flank plants at the two corners of this group were from Mr. Gaines; one of them—*Leptospermum bullatum*, seven to eight feet high and three feet through—was one mass of white bloom, looking, at a distance, like some *Eriostemon*; the other was a yellow *Rhododendron*.

The Roses from Mr. Lane were the next, and stood thus in single file.—*Jules Margottin*, red, and *Souvenir d'un Ami*, white, but now a perfect blush, for the centre; *Paul Perras* on the left, and *Duchess of Sutherland* to the right of the centre, to match; and, at the extreme ends, *Triomphe de Paris* on the left, and *Baron Prevost* on the right, to match—a most admirable way of placing the colours. The plants were immense bushes, and loaded with the finest Roses.

On the left of these was a collection of rare plants from the Messrs. Fraser:—the yellow *Sempervirens lineolare*; *Musehia Wollastoni*, the Echinus-looking campanulate plant; *Gastrolobium Leakianum*, a close, strong grower, with yellow and brown Pea-blossoms—a fine thing for a specimen; as also are the *Sempervirens* and *Pimelea spectabilis rosea*. On the right of the Roses were two newish *Dendrobiums*, and a collection of Orchids from Mr. Wooley—the only practical man who exhibited air plants. His new *Dendrobiums* were a stout bulbed kind, with violet and cream-coloured blooms, very handsome; the other *Dendrobium tubiflorum*—a lady-like plant, very slender long stalks, or woody bulbs, and most gracefully set with rich crimson and whitish-lilac blooms, somewhat after the *nobile* fashion. His collection of orchids consisted of *Arpophyllum giganteum*, *Gongora truncata*, *Cattleya Skinneri* and *intermedia*, a large *Dendrobium nobile*, *Epidendrum rhynchospermum*, *Oncidium Phelepoianum*, new to me—the plant is like *sphaelatum* in growth, with upright spikes of yellow blossoms; the spike branching right and left, from top to bottom—*Vanda tricolor*, and an *Aërides*.

Then Mr. Gaines' *Hippeastrums*, six very good kinds. In front of all these was a collection of novelties from the Wellington Road Nursery; two fine golden-leaved *Tom Thumb* Geraniums, *Novelty*, *Tricolor*, *St. Cloud* and *Silver Chain*, all dwarf variegated Geraniums, with beautiful markings; several plants of *Maranta facinata*, a beautiful dwarf with broad leaves, broadly banded with white; *Salvia argentea*, a hoary white-leaved kind, with Campanula-like upright spikes of bloom, not opened; *Aucuba Himalaica*, a most beautiful new evergreen; two or three *Caladium argyrites*, the fairy-silvered little plant which Her Majesty admired so much last year in Mr. Low's novelties; *Maranta regalis*; *Caladium Chausinii*; *Maranta pulchella*, a miniature of *zebrina*; *Campylobotry argyrroneura*, an exceedingly pretty thing, a dwarf purple, with a metallic leaf deeply rubbed across the blade, and several fancy Begonias.

Mr. Veitch occupied the whole of one side of the Hall with a magnificent display of prime plants and novelties. Among them were—*Theophrasta imperialis*, *Ropala Jonghi*, *Aralia Sieboldi*, *Theophrasta macrophylla*, and *Cyanophyllum magnificum*, all with the most splendid leaves ever seen in cultivation. Then a variegated *Hibiscus rosea sinensis*, *Philesia burifolia*, an immense bush; *Clianthus Dampieri*, a dwarf variegated Pothos under a bell-glass, an additional gem to the variegated plants. Fancy Begonias, fine Orchids, and no end of better-known kinds.

On the opposite side Mr. Standish had *Lomatia Bidwillii*, a fine-leaved *Aralia*-looking plant; six kinds of *Hippeasters*; *Gardenia citriodora*, a beautiful upright-growing plant with bunches of white bloom; *Grevillea Drummondii*, a strong grower; and *Myosotis nobilis*, the new Forget-me-not, from New Caledonia, or some of these far-off islands to the east of New Zealand.

The next collection was from the Pine Apple Place

Nursery. The double-yellow *Datura chlorantha*, a fine thing, was conspicuous in this collection; also, the new Arums and Caladiums; *Brunfelsia nitida*, *Grevillea longifolia*, a most elegant-leaved kind; *Boronia Drummondii*, *Pimelea spectabilis rosea*, and *P. Hendersonii*, *Epacris miniata splendens*, a fine thing; with Heaths, Palms, and other fine-leaved plants. Here the prizes began in my rounds:—A first-class certificate for *Caladium Neumannii*, and one to *Caladium Houlettii*; also, a first prize for the double-yellow *Datura*; and there was a *Tydaea hymenophyllum*, a beautiful Fern, under a bell-glass.

Behind this collection was a row of tall Palms, and Palm-like plants from the Messrs. Jackson, of Kingston, which had a second prize. They were—*Monstera deliciosa*, *Livingstonia Borbonica*, *Pandanus utilis*, *Phoenix dactylifera* and *sylvestris*, and *Thrinax parviflora*, the first time of booking it. Most of these handsome Palms are wintered with Chinese Azaleas.

Next in order stood a collection of Ferns from Mr. Hally, for which he had a second-class certificate. Then a collection of eight handsomely grown plants with fine foliage and variegated, which took a first prize to Mr. Young, gardener to H. Stone, Esq., Dulwich. *Bromelia sceptrum* was a wrong name in this group for *Saussurea zeylanica*, and two bunches of *Exocorda grandiflora*, in bloom, from Mr. Standish,—that was the *Spiraea grandiflora*, a fine, hardy, early-flowering shrub, not unlike the looks of a *Deutzia gracilis*, with flowers that measured four times the size.

This *Exocorda*, the new *Aucuba Himalaica* from the Wellington Road Nursery, and the Holly-leaved Olive from Mr. Veitch, were the three most useful plants there for the country at large, as they are everybody's plants, & hardy, as they are said to be.

These are really the right kind of Shows for a London room. The hall is "set off" like a conservatory; the galleries are "decorated" like the lobbies and corridors of large mansions. The smallest plants have the same interest as the large ones; and the novelties from the nurseries and cross-breeders are not swamped by purseproud grown specimens which are of no use, except in the fancy of those who grow them, and for the middle of the Crystal Palace. Yes—Depend upon it we want nursery exhibitions like this one ten times more than the scramble for pot-prizes as at Chiswick; and if the London trade were to put their shoulders to the wheel, they might win themselves more trade, and have less credit in their books, than running after the Doctor down at Chiswick, besides landing the Society out of the fix. "That is all very well, Donald Beaton; but why not tell the reason why we practical gardeners can no longer support the Society?" Well, I have had to tell more than I liked already; and I can tell the reason why. You and I have been pricked at last on our most sensitive nerve by Dr. Lindley. Our wives and sweethearts, our bairns and those who rest on our arms, have been most wontonly insulted in open day by the Doctor not later than the Saturday before this Show. He tells a foreigner, in his "Answers to Correspondents," that we are all gentlemen here in England, except "small tradesmen and ladies' maids," who alone read cheap books; and that influential people can take no part with such folly and wickedness; and that all the best gardeners in the kingdom are married to ladies' maids, or nine out of every dozen of them, at all events. And nine out of every ten of all the best gardeners round London, on reading this gratuitous impertinence, vowed that they could strain at a fool and swallow an ass sooner than support a Society which encourages the writer of that insult.

TEN ORCHIDS (Amateurs).—First, Mr. Wooley, Cheshunt, Herts.

TEN ORCHIDS (Nurserymen).—First, Messrs. Veitch and Son, Exeter and Chelsea.

EIGHT CHINESE AZALEAS (Nurserymen).—First, Messrs. Fraser, Lea Bridge Road, Leyton.

SIX CHINESE AZALEAS, STANDARDS (Nurserymen).—First, Messrs. Fraser, Second, Messrs. Lane, Great Berkhamstead.

EIGHT RHODODENDRONS, DISTINCT IN POTTS (Nurserymen).—First, Mr. J. Standish, Bagshot. Second, Messrs. Lane.

SIX ROSES IN POTTS.—First, Messrs. Lane, Great Berkhamstead.

EIGHT FINE-FOLIAGED PLANTS.—First, Mr. Young, gardener to H. Stone, Esq., Dulwich Hill. Second, Messrs. Jackson, Kingston.

RARE ORNAMENTAL PLANTS.—First-class certificate, Messrs. Veitch and Son, Exeter and Chelsea, for a species of *Pothos*; ditto for *Clianthus Dampieri*. Second-class certificate, Messrs. Veitch and Son, for *Begonia Amabilis*; ditto for *Caladium Chanteri*. Third-class certificate for *Begonia Queen Victoria*.

SINGLE SPECIMEN OF THE MOST ORNAMENTAL PLANT IN FLOWER.—First, Messrs. Veitch and Son, for *Philexia burifolia*. Second, Mr. Wooley, Cheshunt, for *Dendrobium latifolium*. Third, Messrs. Henderson and Co., Pine Apple Place, Edgeware Road, for *Datura chlorantha*.

SINGLE SPECIMEN OF THE MOST ORNAMENTAL PLANT IN FLOWER.—First-class certificate, Messrs. Veitch and Son, for *Wellingtonia gigantea*; ditto, *Farfugium grande*; ditto, *Cyanophyllum magnificum*; ditto, *Olea icifolia*. First-class certificate, Messrs. Henderson, Pine Apple Place, for *Caladium Neocarnarici*; ditto, *Caladium Chanteri*; ditto, *Caladium Houlettii*.

MISCELLANEOUS.—First-class certificate, Mr. Francis, F.H.S., nurseryman, Hertford, for a collection of Roses; Messrs. Veitch and Son, for a large group of miscellaneous plants; Messrs. Henderson and Son, Wellington Road, St. John's Wood, for a miscellaneous collection. Second-class certificate, Mr. Standish, F.H.S., Bagshot, for *Myosotis nobilis*; ditto, *Exocorda grandiflora*; Mr. Hally, Blackheath, for a collection of Ferns; Mr. Gaines, F.H.S., for six *Amaryllids*. Third-class certificate, Mr. Bragg, Star Nursery, Slough, for cut Pansies.

On the second day of the Exhibition the plants looked very ill; the Roses shed their bloom, the Azaleas flagged and shrivelled up, and there was an evident indication that they were not in comfortable quarters. Unfortunately the windows of the Hall are all close; and there is no free admission of fresh air sufficient to counteract the evil influence of the foul air that must inevitably act so prejudicially on the plants. It is quite clear that these close halls are not the places for Flower Shows of two days' duration.

The attendance of company was, unfortunately, small; and, in a pecuniary sense, the speculation must have proved a failure.

D. BEATON.

CANDLES FOR WALTONIAN CASES.

I HAVE been experimenting for six weeks with a view to heat Waltonian Cases by means of candles, not for my own pleasure or profit, but for the good of all who use this famous contrivance. Messrs. Price and Co. have very kindly complied with every wish I have expressed, and made no less than eight different kinds of candles, all of them suitable except one. I will not take up your space by a recital of the minute details of the affair; suffice it that I consider the essentials to be a candle eight inches long, to burn twelve hours, and to heat the Case to at least 80°. The result is, as previously stated, a candle which burns twelve hours, and gives 80° bottom heat, or 84°, if the Case is kept very close. That it should not be ready for public sale may be the case, for there is great trouble and no little expense attending the construction of the moulds and the selection of a material of the proper degree of hardness, size of wick, &c. But that is no reason why I should keep the result to myself, especially as I have no interest in the sale of anything. Some people think all writers dealers. I never sold a plant or packet of seed in my life, and have nothing to do with the sale of these candles; but, as I am now burning them, I can aver that "Price's people have been lucky," and that I have been lucky too in making such a suggestion. Again, Mr. West may have "tried Palmer's people," without success; but I got from Palmer's people a candle ready made, which I used before I wrote to Messrs. Price and Co. Having a sick-house, we were burning Palmer's Minimum Night Lights, and the mess of the lamp drove me to try one of them. Of course they were too weak; but I got at once from Mr. Colsell, of Bishopsgate Street, a supply of Palmer's No. 6 Night Lights, and a lamp to fit them, and I had a candle for the case at once, which gave 75° bottom heat, and burnt twelve hours. Why not be content? Because my Case stands on legs eight inches high, and Palmer's lamp for the No. 6 is about twelve inches high; and for my first experiment I had to take up a piece of paving, and make a hole in the floor of the house, into which to sink the lamp under the Case. Those who want candles, therefore, can do as I did, and either lift up the Case, or sink the lamp; and there the matter is settled. But the candle Messrs. Price will provide, will be ten

times better; and as to other people getting what I have got, that is but a matter of time.—SHIRLEY HIBBERD.

[I am the defendant in this case, but I ought to be the complainant. Mr. Hibberd had an interview with Mr. West on the subject of the candle, and promised to let Mr. West know the result as soon as Price's people succeeded in making a suitable one for the Waltonian. Mr. West heard no more about it till he received a leaf out of Dr. Lindley's book—a slip containing a communication from Mr. Hibberd, in which the candle and the Case are recommended; but THE COTTAGE GARDENER is ignored altogether, and other works are mentioned, in which are drawings of the Case taken from THE COTTAGE GARDENER. As godfather to the Waltonian Case, I thought that an unfair way of dealing between gentlemen of the same craft. Very unfair indeed! and I could lay my hands on a volume of the "Botanical Register," in which Dr. Lindley said, smarting under similar circumstances, "that such practice was like opening a shop for the reception of stolen goods." But I would not hit so hard. "Only it looks so curious-like."

Hearing of the candle, so "curious-like," Mr. West called at Price's factory, and was told they sent their ship-candle to Mr. Hibberd for a trial, and they proposed sending down a box of them to Surbiton for Mr. West to make sure of it. I shall see the experiment tried by three of the best propagators by the Waltonian in the three kingdoms,—namely, Mrs. Walton, to whom we are all indebted for this excellent contrivance; Mrs. West, who passes judgment on every Case before it leaves her husband's factory; and to Mrs. Whitby, the lady of Capt. Whitby, inspector of prisons, Lakelands, Dundrum, near Dublin. Capt. Whitby resided here when the Waltonian came out, and learned the working of it from Mrs. Walton. He was then removed to Ireland, where Mrs. Whitby has been doing wonders with the Waltonian ever since, and never had the slightest trouble or difficulty with it. But does it not "look so curious-like," that Capt. Whitby should have come over to London this week to tell us all this? Yes—he called on me to say how delighted they were with this amusement, and told what difficult things Mrs. Whitby managed to get up in it; and he ordered another Case from Mr. West for a friend, and another is ordered for Cork.

Now, as the Doctor and Mr. Hibberd thought proper to open their shops for the working of the Waltonian, and deemed it fair to slight the old man who nursed and fed the babe, clothed the youth, and outfitted the full-grown man in THE COTTAGE GARDENER, let the readers of THE COTTAGE GARDENER allow the candle to rest under the bushel until the said ladies return a practical verdict; and Mr. Hibberd may depend upon it, if Price's ship candle is better for the Waltonian than the lamp, he will not go without the credit of his fair share of the merits of the outfit, if I be alive and well. I had not the slightest intention of depriving him of his share when I said the candle was only in expectation.—D. BEATON.]

THE SCIENCE OF GARDENING.

(Continued from page 61.)

RETURNING to the consideration of the food obtained by a plant from the soil by the agency of its roots, we find that silica, or the pure substance of flint, is present in all soils; is soluble in water, requiring one thousand times its weight of this liquid to dissolve it (*Kirwan's Mineralogy*, vol. i, p. 10); is found in many plants, and in all the grasses that have been analysed.

It was the opinion of Lampadius that the earths contained in plants are merely the effect of vegetation, and altogether independent of the soil in which they grow. The experiment was as follows:—Five beds, four feet square by one foot in depth, each containing a pure earth,—alumina, silica, lime, magnesia, garden mould, and each mixed with eight pounds of cowdung, were sown with rye. The produce of each was separately reduced to ashes, and the same principles were found in them all, particularly a portion of silica. Whence came the silica in the bed of alumina? According to Lampadius it was the result of vegetation. But Saussure, after Ruckert, has shown that cowdung contains a portion of silica. (*Sur la Veg.* chap. ix. sect. 3.) Hence the substance which Lampadius could not account for but by means of vegetation he had supplied with his own hands. It is now known that the earths are partially soluble, some of them in pure water, and all of them with the aid of acids; so that we may fairly presume that they are taken up in solution by the

root, and converted to the purposes of vegetation. Not that they are capable of affording any considerable degree of nourishment to the plant, but that some plants seem to be benefited by absorbing them. The grasses have their stems thus strengthened, and the Equisetaceæ and the Palms have their stems or leaves better fitted for the purposes of art. The leaves of Palms make a substantial thatch for covering houses owing to the silica they contain; and the Dutch Rush is made use of to polish even brass.

Alumina, or the basis of clay, present in all soils, is so soluble in water as to be inseparable by the filter, and is much more so when any of the acids are present (*Sennebier's Physiolog. Veget.* vol. iii. p. 18); it is found in plants in minute quantities, especially in the grain of barley, Oats, Wheat, &c. (*Schroeder, in Gehlen's Journ.* vol. iii. p. 525). The chief value of Alumina in a soil is by enabling it to retain moisture and the soluble portions of organic manures as they decompose. It also retains their ammonia; and it is believed that it even absorbs this great promoter of vegetation from the atmosphere.

"Peroxide of iron and alumina," says Liebig, "are distinguished from all other metallic oxides by their power of forming solid compounds with ammonia. The precipitates obtained by the addition of ammonia to salts of alumina or iron are true salts, in which the ammonia is contained as a base. Minerals containing alumina or oxide of iron also possess, in an eminent degree, the remarkable property of attracting ammonia from the atmosphere, and of retaining it. Vauquelin, whilst engaged in the trial of a criminal case, discovered that all rust of iron contains a certain quantity of ammonia. Chevalier afterwards found that ammonia is a constituent of all minerals containing iron; that even hematite, a mineral which is not at all porous, contains one per cent. of it. Bouis showed also, that the peculiar odour observed on moistening minerals containing alumina is partly owing to their exhaling ammonia. Indeed, many kinds of gypsum and some varieties of alumina, pipeclay for example, emit so much ammonia when moistened with caustic potash, even after they have been exposed for two days, that reddened litmus paper held over them becomes blue. Soils, therefore, containing oxides of iron and burned clay must absorb ammonia, an action which is favoured by their porous condition; they further prevent, by their chemical properties, the escape of the ammonia once absorbed. Such soils, in fact, act precisely as a mineral acid would do if extensively spread over their surface.

"The ammonia absorbed by the clay or ferruginous oxides is separated by every shower of rain, and conveyed in solution to the soil."

Lime is found in almost all soils; it is easily soluble in water, and there is but one plant that is not known to contain some of it as a constituent—the *Salsola Soda* (*Ann. de Chimie*, vol. xviii. p. 76). Thus a crop of Beans, twenty-five bushels per acre, contains in those twenty-five bushels 36½ lbs. of lime,—namely, 2½ lbs. in the seed, and 34 lbs. in the stems and leaves. Twenty tons of Turnips from the same space of ground contain 118 lbs. of lime—46 lbs. in the bulbs, and 72 lbs. in the leaves. Eight tons of Potatoes from an acre contain 39 lbs. of lime—8 lbs. in the tubers, and 31 lbs. in the haulm.

Another important suggestion is thus thrown out by the late Professor Johnston:—"Can lime take the place of potash or soda in the living plant? We have no series of analyses of entire plants which are fitted to throw much sure light upon this point. In regard, indeed, to certain parts of the plants it appears that the proportion of lime they contain may vary very much, and that as the lime increases the alkaline matter diminishes. Thus, in—

"a. *The Tobacco leaf*.—The mean relative proportions of the alkaline matter and of lime found in a series of tobacco leaves grown in two different localities were as follows:—

	I.	II.
Potash and soda	27.02	12.21
Lime	27.87	45.90

"Each of these results is the mean of four analyses; and they appear to show satisfactorily that in the leaf of this plant the lime may increase while the potash diminishes. In other words, the lime may take the place of a part at least of the potash. So

"b. *The twigs of the Vine*, from two localities, gave an ash which contained of alkaline matter and of lime respectively—

	I.	II.
Alkalies	45.82	27.98
Lime	29.75	40.75

from which it would appear as if lime in this plant might also take the place of potash and soda.

"Such facts as these seem to render it probable that lime may supply the place of alkaline matter to a certain extent—may perform some of its functions in some plants. We know too little, however, of the changes which take place in the relative proportions of the inorganic substances in the same part of a plant at different periods of its growth, or of how much of that which is found in the leaf or twigs is really essential to its healthy existence, to be able to estimate the amount of reliance which ought to be placed upon the conclusions to which the above facts seem to lead.

"It is not likely that limo should serve the purpose of the alkalis in rendering silica soluble, and thus making its entrance into the roots of plants more easy—though even here our knowledge is by no means certain. As lime is so very abundant, it would be both interesting and important to make out by experiment to what extent it may perform the functions and supply the place of alkaline matter in our cultivated crops."—(*Lectures on Agricultural Chemistry.*)

When caustic lime, or, as it is commonly called, quicklime is added to a soil it decomposes the salts of ammonia which the soil contains, driving off the ammonia, but which is absorbed and retained by the alumina in the soil. Caustic lime also promotes the rapid decay of vegetable and animal bodies in the soil; and is especially useful in rendering fertile boggy soils full of woody matters, and containing an excess of the salts of iron.—J.

(To be continued.)

NEW AND RARE PLANTS.

ANGREĆUM SESQUIPEDALE (*Foot-and-a-half Angraecum*).

This magnificent orchid was introduced from Madagascar by the Rev. W. Ellis. It bloomed in February of this year at his residence, Hoddesdon, Herts. The flowers, including the spur, are really more than eighteen inches across, of ivory whiteness, and perfumed like the Garden Lily. It is "the prince of orchideous plants."—(*Botanical Magazine*, t. 5113.)

BILBERGIA MACROCALYX (*Large-calyced Bilbergia*).

Native of the mossy branches of trees at Bahia, whence it was introduced by our consul, J. Wetherell, Esq. Its chief beauty is conferred upon it by its bright crimson bracts.—(*Ibid.* t. 5114.)

GESNERA PURPUREA (*Purple-flowered Gesnera*).

This has been called also *G. verticillata* and *G. Douglasii*. Native of Rio Janeiro. Flowers pink, very regularly spotted with crimson.—(*Ibid.* t. 5115.)

RHODODENDRON WILSONI (*Wilson's Rhododendron*).

Result of a cross between *R. ciliatum* and *R. glaucum*, effected by T. Nuttall, Esq., of Nutgrove, Rainhill, Lancashire. Flowers white, tinged with pink.—(*Ibid.* t. 5116.)

ÆSCULUS INDICA (*Indian Horse-Chestnut*. Called also *Pavia Indica*).

"Found on mountains at elevations of from 8000 to 10,000 feet in Kamaon, Gurlmal, and Sirmore; also near the sources of the Ganges, and in Kunawar." It bloomed in July, 1858, at the family seat of the Bunburys near Mildenhall, in Suffolk; being raised from seed sent by Col. Bunbury from the north of India. Flowers white, blotched with pink, and yellow at the base.—(*Ibid.* t. 5117.)

PORTLAND CEMENT INJURIOUS TO GOLD FISH.

IN answer to "A READER" (p. 70), I am certain that this is harmless to fish, except they are put in the water too soon. To escape this, fill the tank or basin with water, and expose it to the sun and air for about a week; then empty the water, and clean it perfectly.

Next take as much of an aquatic plant as is required to obtain an equal balance (*Valisneria* or *Anacharis* is best); tying the roots with a piece of matting, and sinking it with a stone. Let it stand for about twenty-four hours in the sun after putting in the water: it is then ready for the fish.

There is no occasion for fear as to the winter affecting the fish or tank, as the warmth of a living-room is quite sufficient to keep it in order. In fact, I am of opinion that in the winter time the fish are more healthy than in the summer.

Any further information I can give you I shall feel most happy in affording, should it be of any use. What I have sent I know from experience.—G. M. B., *Yarmouth*.

[We shall be glad to hear from you on the general management of gold and silver fish.—Eds.]

FERNS IN MINIATURE CONSERVATORIES.

THIS engraving gives a very imperfect representation of the only really tasteful arrangement in a confined space of Ferns, Lycopods, and Mosses, that we have ever examined.



The rockwork and liliputian ruin, on and about which these cryptogamic plants are growing, are prepared by Mr. W. F. French, of Bristol, and specimens, at very moderate prices, are on sale at Mr. R. Kennedy's, Bedford Conservatory, Covent Garden. To look at them in their unfurnished state they are not very attractive; but when placed under a glass shade and appropriately planted, as in the above engraving, they are very effective. We have one before us most strikingly so. The base, or groundwork, composed like the ruin, of fragments of various calxes and stones, is covered with growing Lichens; and grouped about the ruin are—*Adiantum formosum*, *Adiantum capillus Veneris*, *Asplenium ruta muraria*, *Pteris serulata*, *Lycopodium densa*, &c.

The following are Mr. French's directions for keeping them in a healthy condition:—

"The best situation for the case is in a window open to the north; but the plants will grow and flourish in other aspects, if due care be taken to shade them from direct sunlight, which causes Ferns to grow too rapidly, and to become deformed. Twice a-week in summer, and once a-week in winter, the glass cover should be removed for a few minutes, and occasionally the inner side of the glass and the rim of the case may be wiped dry.

"A small quantity of rain water must be added, from time to time, to replace that subtracted by evaporation and by wiping the glass cover. About a wine glass full at a time, and five or six times a-year, will generally be found sufficient. The best way to apply the water is with a small piece of sponge, or a small syringe; care being taken to avoid wetting the leaves, which causes them to rot away.

"Dead leaves and branches must be cut out neatly. The same side of the case should be always kept turned towards the light. The natural growth of Ferns is very slow."

We ought not to omit mentioning that wherever Mr. French has exhibited his Fern-adorned rockwork it has been generally admired. It forms one of the most elegant of room adornments.

HOME-MADE SUGAR.

WERE Beet-roots duly cultivated in England, observes Mr. J. Bruce Neil, "baked," without scraping the skins, and sold as cheap as they might be, many a poor person would have a hearty and good meal, who is now often obliged to go without one! He recommends to all, having small gardens, to cultivate them

for manufacturing an efficient substitute for sugar, which is certainly purer than the gross treacle and low-priced sugars sold at the shops. In order to effect this, he directs that the white Beet, as containing more saccharine matter, should be cut, while fresh, into pieces, and well pounded in an iron mortar; then put into a linen bag and squeezed, or pressed, with great force. The roots are then infused in water, put into the bag, and squeezed again into the water in which they were infused. The two liquors are then mixed together, strained, and purified by means of the sugar-baker's coarsely-powdered charcoal, and then boiled gently to the consistence of a syrup. (This experiment may be useful to country people in low circumstances, where there is a large family to maintain; who, instead of buying sugar, which forms a large item in their weekly expenses, may obtain it from the plants at their own door.) The directions are certainly simple enough. In infusing the roots after pressure, water only sufficient to cover them should be used.

QUERIES AND ANSWERS.

SLIMY SUBSTANCE ON GARDEN WALKS.

"An old subscriber to your valuable journal encloses a substance found on her garden paths after rain (the walks are covered with very small pieces of lime rock), requesting to know what it is."—C. B. C., *Somerset*.

[It is *Nostoc commune*, one of a rather numerous progeny of the confervoid algae, of which we have the representatives in this country of not fewer than seven genera. The present species is very common on garden walks, rocks, barren pastures, &c., in autumn, winter, and early spring. For full particulars consult Hassall's "British Fresh Water Algae," plate 74, f. 2. The structure of the above is very beautiful under the microscope—being in bead-like chains. Limestone is especially favourable to its growth.]

NOTES ON SOME SPRING FLOWERS.

"I have two *Triteleias*. One from Carter, received under the name of *Leucocoryne ixioides*; and another from the Dublin (Glasnevin) Botanic Garden, under the name of *Milla uniflora*. This last flowers earlier than the other, and is now over. The tinge of blue is very slight in this variety. The other is now in flower; colour pale blue, with the petals acuminate, or prolonged into a point at the ends. I have the white Apennine Anemone; I found it in profusion in the ruins of Hadrian's villa near Rome. I never saw the blue wild English sort, and suspect an error on this point.

"Have you, or any one else, seen a double white Hepatica blossom? I have not: when I do I will believe in its existence. I once had two single whites; one with pink, and one with white anthers. They were tender with me; but I once saw them growing like weeds in pure peat. All Hepaticas will thrive in pots.

"I once had *Cyclamen vernum*. It answered Gordon's description. The leaf was not so glossy as that of *coun*, and there was a mark on it. *Repandum* is a beautiful thing. Under the masterly hand of my old friend Mr. Atkins (*Cyclamen Atkinsii*), it was a delight to look upon. I well remember his showing me a pot of seedlings, and saying that he thought he had crossed them at last. We now know that cross almost as a household word. I believe Mr. Atkins could tell us more about *Cyclamens*, alpinas, and little out-of-the-way beauties than any man in the three kingdoms, unless it is yourself. I will send your correspondent some white *apennina* when the time comes."—AMELLUS.

[There is no mistake about the blue English *Anemone apennina* of English botany. We have a capital figure of it now before us by Mr. Sowerby. There is one patch of it in our own garden, which has bloomed three years successively. We mentioned it three years since as growing, or flowering, in pots in the show-houses at the Pine Apple Place Nursery. This spring Mr. Beaton saw "loads" of it with the Messrs. Fraser—perhaps a thousand "roots." Neither is there the slightest doubt about a double white Hepatica having been once in cultivation. Gilbert, in his "Florist's Vade Mecum," calls them "*Hepatica nobilis*, noble Liverworts, of two sorts, single and double, of each lighter and darker, blue and white." After describing the single ones as well

as they could be done to-day, he goes on to say, "Double Hepaticas differ from the single ones, not in colour, but only the double blue is of a more lustrous and deeper die. The double white hath fresher and smaller green leaves than the rest; snow white, and as thick and double as the peach or blue-coloured, but more rarely met withal, and therefore more regarded; yet all of them the prettiest beauties the spring, at her first approach, exposes to our view."]

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 80.)

GRAPES.

ROYAL MUSCADINE (*Amber Muscadine; Muscadine; White Chasselas; D'Arboyce; Chasselas; Chasselas Doré; Chasselas de Fontainbleau; Campanella Bianca; Weisser Guttedel*).—Bunches long, loose, and shouldered; sometimes compact and cylindrical. Berries large, round, and, in the compact bunches, inclining to oval. Skin thin and transparent, greenish-yellow, becoming pale amber when quite ripe, and sometimes marked with tracings and dots of russet; covered with thin white bloom. Flesh tender and juicy, sweet, and richly flavoured.

This excellent and well-known grape ripens well in a cool vinery and against walls in the open air. The many names it has received have arisen from the various forms it frequently assumes, and which are occasioned entirely by the nature of the soil and the different modes of treatment to which it is subjected. There is no real difference between this, the common Chasselas, and Chasselas de Fontainbleau. The White Muscadine of some authors is the Early Chasselas.

St. Jean. See *Black July*.

ST. JOHN'S (*Raisin de St. Jean; Joannee; Joannene; Blanche; Lashmar's Seedling; Maerady's Early White*).—Bunches about five inches long, with a very long stalk, loose, and with many undeveloped berries. Berries medium sized, roundish oval. Skin thin, and green. Flesh very thin and watery, and though without much flavour is agreeable and refreshing. It ripens against a wall in the open air, and is well adapted for this mode of cultivation.

St. Peter's. See *Black St. Peter's*.

SCHIRAS (*Ciras; Seyras; Sirrah; Sirac*).—Bunches long, loose, and shouldered. Berries large, oval. Skin thick, reddish-purple, covered with blue bloom. Flesh rather firm and juicy; juice pale red, sugary, and with a delicious aroma. Ripens in a cool vinery; and is as early as the Royal Muscadine.

This fine, large, oval, black grape is that which is grown almost exclusively in the vineyards of the Hermitage, and furnishes the celebrated Hermitage wine. It is said to have been originally introduced from Schiraz, in Persia, by one of the hermits who formerly resided there.

Schwarzer Riessling. See *Black Cluster*.

SCOTCH WHITE CLUSTER (*Blacksmith's White Cluster; Laan Hatif; Van der Laan Précoce; Diamant*).—Bunches medium sized, very compact. Berries somewhat oval, or roundish oval. Skin white, covered with thin bloom. Flesh tender and juicy, sweet and richly flavoured. This is a very hardy grape, an excellent bearer, and ripens its fruit against a wall in the open air.

Singleton. See *Catarba*.

Sir A. Pythe's. See *Black Prince*.

Sir W. Rowley's Black. See *Black Frontignan*.

Snow's Muscat Hamburg. See *Muscat Hamburg*.

Steward's Black Prince. See *Black Prince*.

Stillward's Sweetwater. See *White Sweetwater*.

Stockwood Park Hamburg. See *Golden Hamburg*.

Stoneless Round-berried. See *White Corinth*.

Striped Muscadine. See *Aleppo*.

SYRIAN (*Palestine; Jew's; Terre de la Promise*).—Bunches immensely large, broad-shouldered, and conical. Berries large, oval. Skin thick, greenish-white, changing to pale yellow when quite ripe. Flesh firm and crackling, sweet, and, when well ripened, of good flavour.

This is a very good late grape, and generally produces bunches weighing from 7 lbs. to 10 lbs.; but, to obtain the fruit in its greatest excellence, the vine requires to be grown in a hothouse, and planted in very shallow, dry, sandy soil. Speechly states that he grew a bunch at Welbeck weighing 20 lbs., and measuring $21\frac{3}{4}$ inches long and $19\frac{1}{2}$ inches across the shoulders. It is a strong grower and an abundant bearer.

Terre de la Promise. See *Syrian*.

Teta de Vaca. See *Cornichon Blanc*.

Tokai Musqué. See *Chasselas Musqué*.

TOKAY.—The Hungarian wine, called Tokay, is not produced from any particular description of grape, nor grown in any particular vineyard; the name is applied to all wine grown on the hills of Zemplen, of which Tokay is the chief; and the ground so cultivated extends over seven or eight square leagues of surface. The name Tokay is, therefore, applicable to many varieties of grapes, and it has thus been applied to several varieties in this country. But there is one which, being distinct from all the others, I have described under the name of *White Tokay*, which see.

Tottenham Park Muscat. See *Muscat of Alexandria*.

TREBBIANO (*Trebbiano Bianco; Trebbiano Vero; Erbalus; Ugni Blanc*).—Bunches very large, broad-shouldered, and well set. Berries medium sized, roundish-oval, sometimes oval and sometimes almost round. Skin thick, tough, and membranous, somewhat adhering to the flesh; greenish-white, covered with a very delicate bloom. Flesh firm and crackling, sweet and richly flavoured when well ripened.

This is a late grape, requiring the same heat and treatment as the Muscats, and will hang as late as the end of March. It requires fire heat in September and October to ripen it thoroughly before winter sets in. I have seen bunches of this 14 inches long and 10 inches across.

(To be continued.)

NEW BOOKS.

MANUAL OF PRACTICAL GARDENING.*—We have here in a book of 384 pages, a concise, and, at the same time, sufficiently comprehensive treatise on practical and landscape gardening, written in a style intelligible to the most ordinary capacity. The instructions are sound, and to the point, without that diffuseness of detail which more frequently bewilder than enlighten the gardening student. Let us take, for example, the paragraph on "WASTE OF FERTILISING MATERIAL. Waste is no uncommon thing; large heaps of dung receive all the rain, washing its juices through, and the moisture running down the gutters and ditches as black as treacle, not only from the dung-yards of market or gentlemen's gardens, but even those of large farmers; whereas this liquid, if suffered to drain into a tank, would be invaluable. It would often bear ten times its quantity of plain water, and form an excellent liquid manure; although, if applied in its original state, it would be destructive on account of its extraordinary strength. All composts should, on account of this operation of rain, be placed in heaps sloping enough to throw off the wet; and manures of all kinds that quickly absorb, and as rapidly give out moisture. In short, everything that has any fertilising qualities to wash away should be on a paved space with drains running to a common tank; and a pump, or some other contrivance, should be placed there to obtain the liquid as it is wanted."

* *Glenny's Manual of Practical Gardening*. London: Houlston and Wright.

THE WILD FLOWERS OF ENGLAND.*—This is a very beautiful, very truthful, and very useful little book, and we fully believe, as stated in the preface to this new edition, that "many readers perceived new beauties, and acquired new associations which made their meeting with our favourite field flowers more interesting, and more joyous," since they perused its pages. That our readers may judge for themselves, we extract the following:—

"THE FORGET-ME-NOT.

"Myosotis; *L.* Gremillet ou Scorpionne; *Fr.* Vergiss mein nicht; *Ger.* Kruidig muizenoor; *Dutch.* Orecchio de topo; *Ital.* Miosota; *Sp.* Myosota; *Port.* Dukowka; *Russ.* Forgiæt mig ej; *Dan.*

'That name, it speaks in accents dear
Of love, and hope, and joy, and fear;
It softly tells an absent friend
That links of love should never rend;
Its whispers waft on swelling breeze,
O'er hill, and dale, by land and seas,
Forget-me-not!

'Gem of the rill! we love to greet
Thy blossoms smiling at our feet.
We fancy to thy flow'et given
A semblance of the azure heaven;
And deem thine eye of gold to be
The star that gleams so brilliantly.'

BOUQUET DES SOUVENIRS.

"The romantic story with which the Forget-me-not is connected has made it known to thousands who, perhaps, would never otherwise have become acquainted with its existence. Independent, however, of the fame thus attached to it, when once seen and noticed, its own beauty would gain for it a place in the memory. The bright blue of the flowers, and their rich golden centres, render them individually an object to be admired; and as they gradually unfold themselves at the curled extremity of the stem, where they are ranged in two rows, and alternately, on foot-stalks, their appearance is truly beautiful; but when the plants in bloom are so numerous as to form a sort of fringe on the margin of a rivulet, as we have seen them, words cannot convey an adequate idea of the effect. They are, in truth, very ornamental to our streams and ditches, and cannot fail to win the favour of every ramble who strolls where is seen,

'By rivulet, or spring, or wet road-side,
That blue and bright-eyed flow'et of the brook,
Hope's gentle gem, the sweet "Forget-me-not,"'

"The incident already referred to as having rendered this flower so well known, and which we are told gave rise to its present name, is said to have occurred on the banks of the Danube. Two betrothed lovers were strolling along, on a pleasant summer's evening in the delightful month of June, engaged in agreeable and affectionate conversation, when they observed the pretty flower of the Water Scorpion Grass apparently floating on the water. The bride elect looked upon the flower with admiration, and, supposing it to be detached, regarded it as being carried to destruction; her lover, regretting its fate, and wishing to preserve it, was induced to jump into the river; but as he seized the flower, he sunk beneath the stream: making a final effort, he threw the flower on the bank, repeating, as he was sinking for the last time, the words "Vergiss mich nicht." Since this event, the Germans have called the flower *Vergissmeinnicht*, and we, translating the word, Forget-me-not.

"The circumstance whence this flower derived its name, and the name itself, have made it a favourite with German poets. Goëthe, in his 'Lay of the Imprisoned Knight,' represents it to be the choice flower of the lady whose praises are rehearsed. We insert Lord F. Leveson Gower's translation of these lines:—

'Ah! well I know the loveliest flower,
The fairest of the fair,
Of all that deck my lady's bower,
Or bind her floating hair.

'Not on the mountain's shelving side,
Nor in the cultivated ground,
Nor in the garden's painted pride,
The flower I seek is found.

'Where time on sorrow's page of gloom
Has fixed his envious lot,
Or swept the record from the tomb,
It says, Forget-me-not.

'And this is still the loveliest flower,
The fairest of the fair,
Of all that deck my lady's bower,
Or bind her floating hair.'

"The Forget-me-not grows on the banks of the Avon, and an

* *The Wild Flowers of England*, or Favourite Field Flowers popularly described. By the Rev. R. Tyas, M.A., &c. With twelve highly-coloured groups of flowers by J. Andrews, F.H.S. London: Houlston and Wright.

English writer has compared its rich colour to the eye of his beloved:—

- 'To flourish in my favourite bower,
To blossom round my cot,
I cultivate the little flower
They call Forget-me-not.
- 'It springs where Avon gently flows,
In wild simplicity,
And 'neath my cottage window grows,
Sacred to love and thee.
- 'This pretty little flow'ret's dye,
Of soft cerulean blue,
Appears as if from Ellen's eye
It had received its hue.
- 'Though oceans now betwixt us roar,
Though distant be our lot,
Ellen! though we should meet no more,
Sweet maid, Forget-me-not!'

"We have also observed the Forget-me-not here and there blooming on the reedy margin of the shallow Dearne, as it winds along its tortuous course through the broad vale which bears its name, in Yorkshire; but nowhere have we seen it so abundant and in such luxuriance as on the classic banks of the Cam and the Granta, along with the yellow Water Lily (*Nuphar lutea*), and the yellow Iris (*Iris pseudo-acorus*); and in the moist ditches of the fields lying adjacent to them, in Cambridgeshire.

"The generic name, *Myosotis*, is compounded of two Greek words, signifying mouse-ear, to which its leaves are thought to bear a close resemblance. It flowers profusely during the months of June, July, and August; and the lower part of the stem, which is from one to two feet high, is generally below the surface of the water. The whole plant is covered with soft, white, depressed hairs. The Germander Speedwell is frequently mistaken for it, but a comparison of the two will immediately show the difference; and the distinctions once noticed are not likely to be forgotten.

"The Forget-me-not, which was formerly known as Mouse-ear Scorpion Grass (*Myosotis palustris*), belongs to the Linnæan class *Pentandria* and order *Monogynia*, and is included in the Natural system in the order *Boraginæ*."

VARIETIES.

TREES AT ST. PETERSBURGH.—How favourable the climate and soil of St. Petersburg are to the growth of trees may be seen on the islands in the Neva, where the variety of trees and shrubs renders the landscape quite charming. Cornel, Mountain Ash, and Alder, fill up the intervals between noble Birches, Elms, Limes, Poplars, and Maples. Beech trees are rare in the vicinity of the city, though occurring at Manilofka. The Horse Chestnut is totally absent from the natural woods, and is cultivated as a rarity only in sheltered places in plantations. I saw it in the Botanic Garden at St. Petersburg growing under glass, while at Riga it thrives in the open air. It is not the lower temperature of the soil which here proves fatal to this tree, but the intense cold of a few days in winter. A degree of cold, however, quite as intense as that felt at St. Petersburg, occurs occasionally in the most southern parts of Russian Asia—a fact which proves that botanists do not speak very accurately when they say that northern Asia is the native country of the Horse Chestnut. Linnæus, and, after him, Persoon, among others, adopt this general descriptive comment. M. Schouw, on the other hand, regards the occurrence of the *Æsculus* in Siberia as a characteristic which the flora of that country has in common with that of North America. Sprengel and De Candolle have mentioned, the one Thibet, the other northern India, as being, probably, the original country of this tree. It is still more remarkable to find the environs of Constantinople pointed out as the place where the Horse Chestnut was first found. Busbequius, the ambassador of Ferdinand I. to Soliman, is said to have sent the Horse Chestnut in 1557 to Matthioli, along with other plants which he found in Chalcædon and Adrianople. Sprengel, "Hist. Rei Herbariæ," p. 340; Haller, "Biblioth. Bot." i. p. 360; although the tree is not mentioned in Sibthorp's "Flora Græca." The *Robinia Caragana*, introduced from the south-east, is here planted for hedges, and spreads like an indigenous plant, while in Central Siberia it does not pass north of the 53rd parallel, according to Gmelin. Indeed, it stops at the sources of the Obi, the Tom, and Yenisei. The 20th of May seems to be the day when the leaves of the Birch here unfold themselves. On the 25th the leaflets of the service were fully developed, the Limes being in leaf at the same time, and the Willows in flower. The flowers of

Syringa vulgaris and *Robinia Caragana* opened on the 30th. With respect to the first manifestations of vegetable life, the 25th of May here appears to correspond with the 25th of April at Berlin; but the greater rapidity with which the various phenomena of development succeed one another, as we go northwards, was here very manifest. The ice disappears from the Neva on the 22nd of April; in thirty days the Birch trees are in leaf, and seven more the *Syringa* flowers.—(Erman's Travels in Siberia.)

LAYLOCK, OR LILAC.—In describing the Queen's and the Princess's dresses at the Handel Jubilee in Westminster Abbey, on 26th May, 1784, we are told that the Queen's dress was of straw colour with *laylock* bows, and the Princess's pale *laylock* with white bows. At the present Queen's drawing-room held on 14th April last, Her Majesty is said to have worn a train of *lilac* satin, &c. I understand that *laylock* in 1784 was the same colour as *lilac* in 1859. Webster says, the shrub commonly called the *Lilac* "is a native of Persia, and is a species of the genus *Syringa*." It may be a native of Persia, but I cannot admit it to be a species of the *Syringa*. May I request to be informed what is the proper botanical name of the *Lilac*? The purple *Lilac* grows to a large size in Lincolnshire, and is there called in common parlance the *Roman Willow*. How can it have received this name? The word *lilac*, when used to denote a colour, should have some specific designation, because there are different varieties of the flower, from pure white through many shades of purple. It is generally understood, I believe, that the term *lilac* always means the purple-tinted flower. If *lilac* means a light purple, then a *white lilac* is a contradiction.—PISHEY THOMPSON, Stoke Newington.—(Notes and Queries.)

[Notwithstanding Mr. Thompson's opposition, the *Lilac* is the *Syringa vulgaris* of botanists. Bauhin, in his "Historia Plantarum," i. 224., says it was introduced to Europe about the year 1597, by Anger de Busbeck, who, for seven years, was ambassador from the Emperor Ferdinand I. to the Sultan Soliman. Busbeck brought it from Constantinople, and gave it its Persian name *Lilac*, or *Lillach*, which seems to have reference to its colour. *Leel*, in Hindoostanee, is synonymous with blue; and *ak* is a clustered flower. The name "*Laylock*" is merely a corruption of the correct name. One of the earliest of our writers on plants, Gerard, calls it "the blew Pipe Privet," but he adds "the later Physicians do name it *Lillach* or *Lilac*." As to its being improper to term its variety "*White Lilac*," it is owing to that imperfection of language which equally obliges us to talk of white Violets, white Blackbirds, &c. The "*Roman Willow*" is a mere local name, occurring in none of our books.]

THE LAMB PLANT.—Mr. Erman says, writing about Nijnei, in Northern Russia:—"The cotton imported by the Bokharians, partly raw, partly spun, is a chief object of the trade of Nijnei. Now that this product of Southern Asia is imported in abundance, it is curious to look back at the fabulous accounts of its origin which were current in Russia not quite a century ago. It appears to me quite certain that the story of the zoophytic plant called Baráñez, or Lamb Plant (formed as a diminutive from Barán, a sheep), originated in some embellished account of the Cotton Plant. Herberstein relates it at full length and unchanged, just as he had heard it: the astronomer Chappe d'Auteroche afterwards added some misconceptions, which evidently arose from his imperfect acquaintance with the Russian language. The German edition of Herberstein (Basil, 1563), adds, that 'the Boranez has a head, eyes, ears, and all the limbs, like a sheep.' But it mentions correctly 'the very fine fleece which the people of that country commonly make use of to pad their caps withal.' This is the ordinary use which the Tatar tribes, in general, make of Cotton at the present day. When Chappe afterwards related that the Baráñez (or, as he corruptly writes it, Baramjäs), grows in the country round the city of Kasan, it is obvious that he was misled by the popular use of the name Kasan, which formerly comprehended vaguely all the Mohammedan principalities on the south-eastern borders of Russia."

[Whilst we can agree with M. Erman, in ridiculing the exaggerations relative to the Tartarian or Scytian Lamb Plant, yet we are quite satisfied that it exists, and that the part of the plant giving rise to those exaggerations is the densely hairy and contorted root-stock which appears in various forms above the surface of the ground. The old writers describe it under the name of *Agnus Scythicus*; but Linnæus, Reichard, and Loureiro, trustworthy botanists of a later date, describe it as a Fern, under the name of *Polypodium Barometz*. Schkuhr and Kunze, still later botanists, who have devoted themselves to the study of

Ferns, have named it *Cibotium Barometz*, and *C. glaucescens*. The following extract from Dr. Martyn gives most of the truth and fable which have been written about this Fern:—"Some, among whom is Kireher, have given a figure of it, much resembling a lamb, as the fruit of some plant on the top of the stalk. It is well known, however, to be the root, which, from the variety of its form, is easily made by art to take the form of a lamb, which the Tartars call Borametz, or rather that of a rufous dog, which the common names in China, and Cochin China imply—viz., Cau-tich and Kew-tfie. The root rises above the ground in an oblong form, covered all over with hairs; towards one end it frequently becomes narrower, and then thicker, so as to give somewhat of the shape of a head and neck, and it has sometimes two pendulous hairy excrescences resembling ears; at the other end a short shoot extends out into a tail; four fronds are chosen in a suitable position, and are cut off to a proper length, to represent the legs; and thus a vegetable lamb, or dog, is produced, which at a due distance it may be easy to mistake for a real animal. It is scarcely necessary to contradict the fables that have been related of this singular root of a Fern; such as that no grass will grow near it, as if the Seythian Lamb had fed it bare. Loureiro, who had an opportunity of examining it in a living state in its native place of growth, affirms that the root when fresh cut yields a tenacious juice, very like the blood of animals in colour and substance; but that all the other wonderful stories that are told about it are fabulous. He says, that the root is astringent, and will stop bleeding; and that it is of service in the gonorrhoea and fluor albus. In the account of the Tartarian Lamb in our "Philosophical Transactions," it is said that the down of the root is commonly used for spitting of blood, about six grains going to a dose, and three doses pretended to cure such hemorrhage; and that in China this down is used for stopping of blood in fresh wounds, as cobwebs are with us; that they have it in so great esteem there, that few houses are without it. This down is of a dark yellowish-snuff colour, shining like silk, some of it a quarter of an inch long. The account says that the root seemed to have been shaped by art, the climbing parts being made to resemble the body, and the extant foot-stalks the legs; that it was more than a foot long, as big as one's wrist, having several protuberances, and towards the end some stalks three or four inches long, exactly like foot-stalks of Ferns, both within and without. Bell, in his journey to Ispahan, informs us that he walked many a weary mile accompanied by Tartars in search of this wonderful plant, but from his imperfect description it does not appear that he saw the true plant. Darwin thus characterises the Tartarian Lamb, adopting, with poetic license, the fable related concerning it:—

'Cradled in snow, and fann'd by arctic air,
Shines, gentle Barometz, thy golden hair.
Rooted in earth, each cloven hoof descends,
And round and round her flexile neck she bends;
Crops the grey coral Moss and hoary Thyme,
Or laps with rosy tongue the melting rime;
Eyes with mute tenderness her distant dam,
Or seems to bleat—a vegetable lamb.'"

TO CORRESPONDENTS.

OLD GOLDEN PIPPIN (W. Brent).—We know of six or seven young trees of this variety in one garden, all perfectly healthy, and bearing annually. There is no symptom of canker or decay in any one of them. They were bought of Mr. Adams, Brentford Nursery.

STOCK FOR AN AQUARIUM (E. S. N., St. Bees).—Apply to Mr. Kennedy, florist, &c., Covent Garden.

WEEDY GRASS PLOT (A Subscriber, J. R.).—There is no wholesale mode of destroying the weeds without the grass sharing the same fate. Your only remedy is having the weeds cut out. It is not an expensive mode, and is the most effective if well done.

ANTS (R. D. Gough).—Strewing guano about their haunts drives them away. If they harbour in a wall, syringing it with a strong solution of guano would probably have the same effect.

GOLD AND SILVER FISH.—A Subscriber from the Commencement of THE COTTAGE GARDENER has long hoped to have seen in its useful paragraphs directions for the care of gold and silver fish in ponds and rockeries; having one so situated, about twelve feet long and five feet wide, cemented at the bottom, with a small fountain, constantly playing, of spring water in the centre, surrounded by rock plants and stones. It is desirable to know why the supply of gold and silver fish is constantly diminishing and never replaced by any increase. Yet the few that remain seem lively and healthy. Is it possible that toads or frogs can destroy them? Being in a rockery, and near a clear running stream, some of those kinds have been found destroyed by the gardener; but dead fish have rarely been discovered. They have not been fed, and are in an airy and open situation, but not cold.—R. A. L.

[We shall be obliged by any practice-founded information on this subject.—EDS.]

TULIP SEEDS (J. V.).—We are not aware that you can buy Tulip seeds at all; and if you could, we would strongly advise you rather to spend your Tulip-seed money on other objects. In the first place, suppose you lived long enough—say seven, eight, or ten years—to see the first Tulip bloom, you would be shocked at the dirty little fry. And in the second place, suppose you did not much mind the disappointment, in another twenty or five-and-twenty years, you might count on obtaining a few border Tulips for yourself, but not good enough to give away. You are now too late to do any good with them this year; but, if you go on your own account, let us hear from you next October; and we shall give you the whole mystery of crossing them. Find out in the meantime the best breeders—that is, if you can; and at the end of seven years we shall take a dozen of your strongest seedling bulbs to see if we can bloom them sooner than yourself. But what Tulips do you like—bedders or prize ones?

SOWING DELPHINIUM FORMOSUM, &c. (A Subscriber).—Sow Delphinium at once in the open air, and transplant the seedlings next February or March into the flower-beds. *Dianthus*, *Laxton's hybrid*, will be in good time if sown at the end of July, and to keep some under cover in winter in case of accident or harm in the open air. The best time to sow *Indian Pinks* in the open air for flowering next year is the first ten days of April, 1860. No other way is even one half so good. With very good frame convenience *Indian Pinks* might be sown as early as February. We have tried them in every conceivable way, and April sowing was the best ten seasons out of twelve.

FLOWERS ON VINE-BORDERS. (E. M.).—It is a bad practice to sow any crop on Vine-borders. The *Saponaria* will hurt it as little as anything. But the *Saponaria* is not at all a good edging plant; it needs thirty inches wide at least, and it rises in the centre, and falls to both sides. Then the colour will not come in with blue, yellow, or any shade of red, purple, or scarlet, without a band of something white between. Indeed, there is not a flower in the garden with which this *Saponaria* agrees: it should have a bed to itself, or a single row. The nearest we can suggest is a white band of the white *Virginian Stock*, one yard wide, behind the *Saponaria*; the rest with the red kind of *Virginian Stock*. They would sow themselves in the autumn, and be a blaze next March and April. All the kinds of *Portulacaeas*, mixed and sown broad-cast over a Vine-border at the beginning of May, would be one sheet of even beauty in the autumn; sow themselves then, and be ten times better looking the following summer. We have seen them thus at Claremont, under Mr. Mallison's able management. No frost ever hurts one tithe of the seeds people believe to be too tender for self-sowing.

GARDEN PLAN (D. J. R.).—We would plant no trees to hide the workshop, but cover the walls with ivy. Trees would ruin the rest of the garden before they were half high enough to hide the building. Black Italian Poplar is the fastest-growing tree for summer screen. Good shrubs and flowers are altogether out of the question under trees planted thick enough for screens; but common Laurel, Box, Holly, and Yew will be the best for a green bottom. The centre bed may be planted with scarlet *Geraniums* and a row of some light-leaved or white-flowering plant all round it. The other four beds with *Calceolarias* and *Verbenas*, *Petunias* and *Lobelias*, or any flowers that way which you like best.

GLARY (F. C. H.).—This is a species of the Sage genus (*Salvia sclarea*). The sowing must be annual in March or April. Thin the plants to two feet apart. The plants taken up may be planted out: this should be done in showery weather. We never heard before of its being put into the water drunk by poultry and pigeons. It is sometimes used in soups and old-fashioned medicines.

NAMES OF PLANTS (55).—Your plants are *Dodecatheon media*, variety *elegans*. The small white flower is the *Saxifraga granulata*, variety *pleno*. *Waterhouse's Conqueror of Europe Auricula* is one of the grey-edge class, and also one of the best in its class; and, without any doubt, yours is correct to its name. (A Subscriber).—Your orchid is *Oncidium luridum*. (R. P.).—Your plant is *Lunaria annua*. It is called *Honesty* and *Moneywort*; the latter from the resemblance of the seed-pods to money. It is a native of Germany. We never heard it called *Penny*, or *Money-seed*, before. (A Constant Reader).—As near as one can judge from small bits, 1, *Lycopodium Martinsii*; 2, *L. Helicticum*; 3, *Adiantum formosum*; 4, *Davallia pyxidata*; 5, *D. canariensis*; 6, *Asplenium bulbiferum*. (F. S., Salisbury).—1, *Spiraea hypericifolia*; 2, *Pulmonaria virginica*; 3, *Convallaria multiflora*; 4, *Cheiranthus ochroleucus Marshallianus*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

MAY 25th and 26th. BEVERLEY. Sec., Francis Calvert, Surgeon, &c. Entries close May 10th.

JUNE 1st, 2nd, and 3rd, 1859. BATH AND WEST OF ENGLAND. At Barnstaple, Devon. Director, S. Pitman, Esq., Rumwell Lodge, Taunton. Entries close May 1st.

JUNE 6th, 7th, and 8th, 1859. GLASGOW. Sec., Robert M'Cowan, 17, Gordon Street, Glasgow.

JUNE 16th. ESSEX. Sec., Robert Emson, Halstead, Essex. Entries close June 1st.

JULY 1st, 2nd, 4th, and 5th. SHEFFIELD. Sec., Wm. H. Dawson, Sheffield. Entries close the 15th of June.

JULY 21st. PRESCOT. Sec., Mr. James Beesley, Prescott.

AUGUST 27th. HALIFAX. Sec., William Irvine, Holmfild, Orenden, near Halifax.

SEPTEMBER 22nd. BRIDGNORTH. Sec., Richard Taylor, Bridgnorth.

OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. Sec., Geo. Griffiths, 7, St. Swithin Street, Worcester.

N.B.—Secretaries will oblige us by sending early copies of their lists.

FATTENING CHICKENS.

HAVING some time since advised that all faulty chickens should now be drafted from the yard to the market, or the

table, it may be expected that we should give some directions as to the best and most profitable method of doing it. Recollect, any bird, however faulty as to colour or shape, or however deformed, will do perfectly well for eating. A little extra feeding while young will cause these pariahs to contribute to the support of their more-highly-favoured fellows. But unless for home consumption, it will be useless to kill them if they fare with the others in the yard. Putting them up will not only fatten them, but it is wonderful, to those unaccustomed to it, to observe their growth in a short time. Amateurs, who are family men, know something of the appetites of long, lean boys, the monstrous consumption of food, which all seems devoted to the growth of arms and legs. It is the result of exercise. It is equally true of chickens; and it is hopeless to attempt to fatten them while they are at liberty. They must be put in a proper coop; and this, like most other poultry appurtenances, need not be expensive. To fatten twelve fowls, a coop may be three feet long, eighteen inches high, and eighteen inches deep, made entirely of bars. No part of it solid—neither top, sides, nor bottom. Discretion must be used according to the size of the chickens put up. They do not want room: indeed, the closer they are the better—provided they can all stand up at the same time. Care must be taken to put up such as have been accustomed to be together, or they will fight. If one is quarrelsome it is better to remove it at once; as, like other bad examples, it soon finds imitators. A diseased chicken should not be put up.

A coop, such as we have described, should be put in any out-house where it is sheltered from draught, and at night should be covered up with sacks. Fowls will not fatten if they are cold. The bars of the coop may be an inch and a half apart, and the food and water must be put outside. The latter must be clean, cool, and fresh.

The food should be ground oats; and may either be put in a trough, or on a flat board running along the front of the coop. It may be mixed with water or milk; the latter is the better. It should be well slaked, forming a pulp as loose as can be, provided it does not run off the board. They must be well fed three or four times per day—the first time as soon after day-break as may be possible or convenient, and then at intervals of four hours. Each meal should be as much, and no more, than they can eat up clean. When they have done feeding, the board should be wiped, and some gravel may be spread. It causes them to feed and thrive.

After a fortnight of this treatment you will have good fat fowls. If, however, there are but four or six to be fattened, they must not have as much room, as if there were twelve. Nothing is easier than to allot them the proper space; as it is only necessary to have two or three pieces of wood to pass between the bars, and to form a partition. This may also serve when fowls are up at different degrees of fatness. This requires attention, as fowls will not keep fat and healthy. As soon as the fowl is sufficiently fattened it must be killed; otherwise it will still get fat, but it will lose flesh. If fowls are intended for the market, of course, they are, or may be, all fattened at once; but if for home consumption, it is better to put them up at such intervals as will suit the time when they will be required for table. When the time arrives for killing, whether they are meant for market or otherwise, they should be fasted, without food or water, for twelve or fifteen hours. This enables them to be kept for some time after being killed, even in hot weather.

If it is desired to make them still fatter, it will be necessary to cram them, and this is more troublesome. The operation may be shortened by taking some that have been fed as before described. The food should now be mixed stiffer, and made into crams the size of a man's little finger. The fowl should be placed in the lap, the beak held open with one hand, and the cram dipped in milk, and gently put down the throat with the other. Three or four crams may be given at a time, and three meals per day—the first as soon after day-break as possible.

There is more trouble than expense in fattening a fowl; and if these directions are carried out the drafts of the yard will furnish many good meals, or pay for food. It is only necessary to make one more remark. These instructions follow our entreaties to amateurs and breeders to dispose of faulty birds before they have become costly by consumption of food. All the foregoing will be thrown away if practiced on old fowls; nothing will make them tender. Therefore, put them up while they are young if you want to eat tender, juicy fowls, and still

more if you want to sell at a good price. They are worth far more now than they will be after you have kept them three months longer.

BIRMINGHAM SOCIETY FOR THE IMPROVEMENT OF THE FANCY RABBIT.

THE above Society held its nineteenth half-yearly Prize Show on the 2nd inst. at the club-house, Mr. J. Brown's, the Globe Inn, Great Hampton Street. About sixty-three rabbits were penned, forming an excellent Show. The prize Rabbits were not so long in the ears as generally shown; but for general properties many were admirable. Annexed is the prize list:—

FOR LENGTH OF EARS.—First, Mr. Russell's Fawn Buck, 20½ long; 5½ wide; 9 lbs.; 8 months. Second, Mr. Lewis's Yellow and White Buck, 20½ long; 5½ wide; 9 lbs. 4 ozs.; 7 months, 19 days.

FOR BLACK AND WHITE.—First, Mr. Hinck's Black and White Doe, 19 long; 4½ wide; 6 lbs. 8 ozs.; 3 months, 23 days. Second, Mr. Lawrence's Black and White Buck, 18½ long; 4½ wide; 7 lbs. 8 ozs.; 7 months, 20 days.

FOR YELLOW AND WHITE.—First, Mr. Guest's Yellow and White Buck, 19½ long; 4½ wide; 9 lbs.; 6 months, 19 days. Second, Mr. Corbett's Yellow and White Buck, 19½ long; 4½ wide; 6 lbs. 4 ozs.; 3 months, 20 days.

FOR TORTOISESHELL.—First, Mr. Guest's Tortoiseshell Doe, 19½ long; 4½ wide; 9 lbs. 14 ozs.; 7 months, 7 days. Second, Mr. Hinck's Tortoiseshell Buck, 18½ long; 4½ wide; 6 lbs.; 3 months, 23 days.

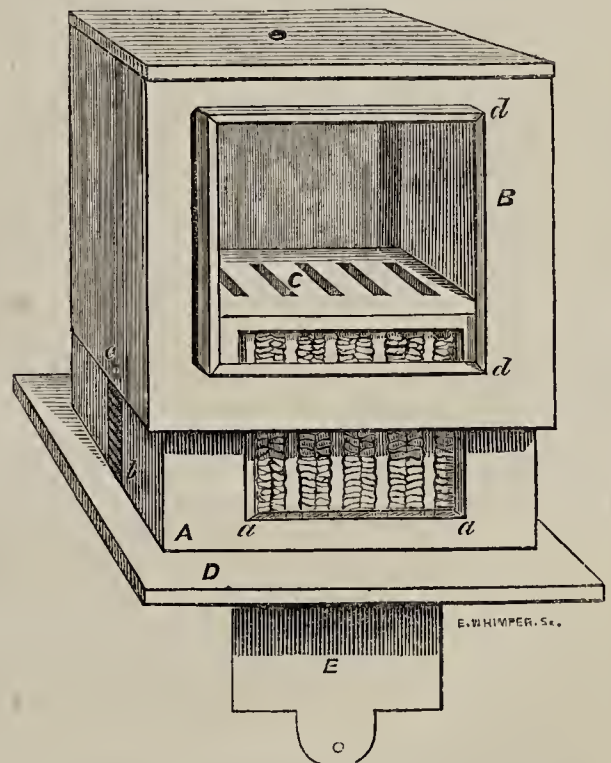
FOR GREY AND WHITE.—First, Mr. Tarver's Grey and White Buck, 19½ long; 4½ wide; 6 lbs.; 3 months, 29 days. Second, Mr. Guest's Grey and White Buck, 20½ long; 5 wide; 8 lbs. 6 ozs.; 7 months, 11 days.

FOR SELF-COLOUR.—First, Mr. Tarver's Fawn Doe, 19½ long; 4½ wide; 6 lbs. 2 ozs.; 3 months, 29 days. Second, Mr. Brown's Black Buck, 18 long; 4½ wide; 5 lbs. 4 ozs.; 2 months, 22 days.

FOR WEIGHT.—First, Mr. Guest's Fawn Doe, 19½ long; 4½ wide; 10 lbs. 2 ozs.; 7 months, 11 days. Second, Mr. Wood's Tortoiseshell Doe, 18½ long; 4½ wide; 9 lbs. 12 ozs.; 9 months.

APIARIAN NOTES.—No. II.

MAY.



ADJUSTER HIVE.—I promised, last year, to give a sketch of a hive which has been found a very remunerative one; but from want of confidence in my powers as a draughtsman, and from a fear that I should fail in rendering such a description of it as would be intelligible to the readers of THE COTTAGE GARDENER, it has been deferred from time to time, until, probably, too late this season to be taken advantage of by any who may be disposed to adopt the principle. But "better late than never" is often a true saying, and may be so in this instance.

I must first premise that this hive was invented by my relative, Mr. G. Fox, of Kingsbridge in this county (Devon); and in his hands, and as adopted by myself, has given some very good

results. About ten years since the inventor obtained a single box, containing 66 lbs. nett of the purest possible honeycomb; one of the combs being more than 10 lbs. in weight. Last year, I took off a super, with 30 lbs. nett, of equally prime quality. So much for what the hive is capable of doing. I will now describe my own, premising that some little modification may be made to suit localities.

A is the stock-box $11\frac{1}{2}$ inches square inside, by 9 inches deep; fitted with seven moveable bars. It is made of $\frac{3}{4}$ -inch stuff, or $\frac{5}{8}$ -inch when planed, and to be well and truly dovetailed together. C is a very thin board used as an adapter, with four or five slits, $\frac{1}{2}$ -inch wide and 8 inches in length, corresponding with the spaces between the bars. This is kept in place by four small screws, well greased. Also, when the bees are confined to the stock-box, a loose top of $\frac{3}{4}$ -inch is fastened down over the adapter; both these being flush with the outsides of the box. B is the super, 13 inches square, by 15 inches deep inside. This will allow about $\frac{1}{2}$ of an inch all round, between the two boxes when put together. It may be rather less than this; but care must be taken that the outer box slips up and down very easily. This is also of $\frac{3}{4}$ -inch stuff, and dovetailed. It has eight bars, and is provided with a moveable top, which may be shaped according to fancy.

A piece of narrow listing may be tacked on all round the outside of the inner box, just below the adapter. But I have lately dispensed with it on the ground of its clogging the movement of the super; and I also fancied that its removal was beneficial in allowing some of the heated air to escape, thus tending to the purity of the honey.

The window in the super is 10 inches high by 7 inches wide, the glass to be as nearly flush inside as possible, and closed by a sliding zinc shutter at *d d*; D is the floor-board; E is a strong zinc shutter, sliding up through a saw-cut in the floor-board, and through a slit in the side of the box at *a a*, to darken the window in the lower box.

To work this hive, stock the lower box as usual, having first attached proper guide-combs to some of the bars, screwed on the adapter, and over that, fastened on the top. The super may then be let down over the stock-box, and a pretty wide roof, loosely resting on it, will form an admirable protection from sun or rain, either in summer or winter.

When the bees require an increase of room, draw out the serews from the top of the inner box; but leave the adapter fastened down. Start the top from the latter, so as to remove easily. Take off the top and the bars of the adapter super, and attach a few good guide-combs of not more than five inches in depth. Gently lift out the top of the inner box, replace the bars and the top of the outer one, and leave all alone until the bees have taken fairly to work in the new store-room. As soon as the combs approximate the adapter (now the top of the stock hive), lift the adapter about an inch. It seems that bees, like Nature, abhor a vacuum; and giving these slight additions to their space stimulates them to increased efforts in comb building. Still they must be afforded judiciously, and care taken that the upper portions of the works are being properly completed and filled with honey, or the bees may waste all their powers during a poor honey season in making a lot of empty combs; so great is the quantity of honey which is required to make a few ounces of wax. It will be seen, on reference to the diagram, that at the side of the hive is a sort of rackwork, cut out in the lower box at *b*, and a stiff steel, or hard wood spring, is sunk on the inside of the upper box at *c*, which catches in each notch as it is lifted up. There is a small handle on the outside, by which the spring can be drawn in, so as to allow the box to be slipped easily down over the lower one. Should, however, the bees require much space, and the upper box become weighty, it would be advisable to give some additional support in the way of two or three upright rods, or by a screw at each corner.

I have endeavoured to describe this hive as my own is made, but shall be happy to afford further information to any one who may require it. In some localities it might be advisable to lessen its capacity a little—say, eight inches as the depth of the stock, and twelve or thirteen as that of the upper box. In this case, it would be better to fix a rim of wood, an inch thick by one and a half in depth, all round the lower part of the stock-box for the super to rest on when down. This would improve its appearance, and afford the desired space of about five inches for the commencement of the works.

Of course, when the super is taken away to be deprived of its contents, it will be necessary to replace the top on the stock-box. This must be done by gently sliding it over the adapter in the

same direction as the slits of communication, so that no bees may be crushed.

MANAGEMENT FOR MAY.—As might have been expected, the very favourable weather which prevailed for so long a time, and which proved such a stimulus in promoting the activity and prosperity of our little favourites, has been succeeded by a continuance of cold and wet, which have operated as a check on their previous progress. But still they have continued to forage assiduously, even when the weather has been so cold as to cause hundreds to be chilled and to meet with an untimely death; as they might be picked up in all directions within one hundred yards of the apiary. Still they must go out for the purpose of collecting supplies for their very increasing populations; and we must console ourselves with the belief, that, after all, the proportion of deaths from these causes bears no comparison to that of the vast increase in the young bees. As a proof thereof, one of my stocks, which appeared to lose the most of any, has to-day (May 5th), “played out so strong” (as they say in these parts), both drones and bees, as to make those who saw it declare that swarming could not be far distant. This is a swarm of last year, which issued on the 12th of May, so that the opinion may be correct; but I hope to prevent it. I find, on weighing some of my hives, that there has been an average decrease of about $1\frac{1}{4}$ lbs. in four weeks. It will, therefore, if cold weather continue, still be advisable to inspect the stocks, and, perhaps, supply a little food to any that may be very weak and light.

Last year I proved that this month is a very good time to unite two or more very weak families. It will answer far better to make one tolerably strong stock than to keep two or three poor ones, which too often just linger on through the summer to die in the autumn.

All strong-depriving hives must now, or very soon, have the necessary enlargement of space afforded them.

Common straw hives may be worked on this plan as well as the best-made boxes. All that is necessary is to make a board an inch thick, and twelve or fourteen inches wide, clamped at the ends, with a three-inch hole in the centre. Pass a sharp pocket-knife through the straw at the top of the hive, so as to cut out a piece of not less than four inches. Go round the cut a second time to be sure that the separation is complete. Take a lump of very soft putty, and lay a thick ring all round the hole in the under part of the board, about an inch from it. The detached piece of straw may now be gently lifted away, the board adjusted on the hive, and pressed down so as to be well fixed in place. Put on a bell-glass, or some other receptacle, which will hold from 20 lbs. upwards. Of course all glasses must be darkened, and proper protection given to the hive from sun and rain.

Even hives that are intended for swarming may be treated in this way; but the store-room furnished them must not hold more than 8 lbs. or 10 lbs. at most. A thin board as an adapter should always be used, as it greatly facilitates the removal of a full glass or box. Taylor’s “doubling board” is also an admirable plan for working cottage hives. I once obtained a full butt of 35 lbs. after only four weeks’ work.


The entrances of the hives should be enlarged according to their strength. I prefer, in all strong colonies, to afford a five-inch opening at this time. It is useful in the case of bees crowding home before a coming shower; and owing to the greater facility with which a tired bee can strike the entrance, I do not find so many chilled ones lying about in the general way. In weaker hives, and those intended for early swarming, to concentrate more heat within a smaller opening may be advisable. Some of my apian friends use and recommend a much more contracted doorway for depriving-hives; but my experience tends to prove that when bees have fairly commenced working in a super, they are much less likely to swarm, and thus disappoint the owner’s expectations, where there is a large opening for the admission of air; and are not so liable to form an exterior cluster of idle bees.—S. BEVAN FOX, *Exeter*.

OUR LETTER BOX.

ERUPTION ON SPANISH FOWL (*A Constant Subscriber*).—Whether this would disqualify it depends on the nature and extent of the eruption. Give the bird a dessert-spoonful of castor oil, and rub the eruption with mild mercurial ointment.

SWARM IN STOCK’S PLACE (*B. & W.*).—The party you refer to has now no connection with this journal; and we must decline all correspondence either about or with him.

WEEKLY CALENDAR.

Day of M th	Day of Week.	MAY 24—30, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon R. and S.	Moon's Age.	Clock after Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
24	TU	QUEEN VICTORIA BORN, 1819.	29.872—29.424	64—44	S.W.	.48	59 af 3	54 af 7	51 m 0		3 30	144
25	W	PRINCESS HELENA BORN, 1846.	30.343—29.781	62—32	N.	.10	58 3	56 7	4 1	23	3 25	145
26	TH	PASSERINA ELLIATA.	30.481—30.302	62—40	E.	.00	56 3	57 7	15 1	24	3 19	146
27	F	KING OF HANOVER BORN, 1819.	30.205—30.060	69—45	S.W.	.01	55 3	58 7	27 1	25	3 12	147
28	S	ARUM ERINITUM.	30.094—30.077	77—41	N.W.	—	54 3	59 7	38 1	26	3 5	148
29	SUN	ROGA. SUNDAY. KING CHARLES II.	30.103—30.040	75—47	S.W.	—	53 3	VIII.	53 1	27	2 58	149
30	M	DIOSMA RUBRA. [REST. 1660.	30.065—30.028	80—46	S.W.	—	52 3	2 8	12 2	28	2 50	150

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 67.0° and 44.8°, respectively. The greatest heat, 89°, occurred on the 24th, in 1847; and the lowest cold, 29°, on the 25th, in 1839. During the period 122 days were fine, and on 92 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

As most plants here are now in active growth, they will require a liberal supply of water. If the sun shines very brightly, a slight shading would be of benefit for a few hours on very hot days.

AZALEAS, CHINESE.—When done blooming, they succeed best in a close pit, kept moderately moist and slightly shaded in the middle of the day. If they are too large for a pit, they will do well in a vinery, or in any other large house where they can stand at a distance from the glass without shading.

BALSAMS AND COCKSCOMBS.—Promote their growth by shifting them into larger pots, in rich soil, with an abundance of light near the glass, and heat.

CAMELLIAS to be treated as advised for *Azaleas*.

GERANIUMS.—If any remain after the flower-garden masses are furnished, they should be potted and treated with every attention as to watering, &c. When they have made fresh roots, and begin to grow freely, to be stopped, to make bushy plants. *Calceolarias*, *Fuchsias*, *Petunias*, *Verbenas*, &c., treated in a similar manner, will be useful as a reserve to succeed the greenhouse plants that are now in bloom, and to fill up vacancies as they occur in the beds and borders.

HEATHS AND NEW HOLLAND PLANTS.—Many being now in full growth will require an abundance of water, more especially in bright weather. Many fine specimens are frequently lost through imperfect watering; for if the ball is once allowed to get thoroughly dry, all endeavours to restore the plant to health and vigour are generally unsuccessful.

STOVE AND ORCHID-HOUSE.

Ornamental stove plants—such as *Brugmansias*, *Centradenias*, *Clerodendrons*, *Eranthemums*, *Euphorbias*, *Geisomerias*, *Gesneras*, *Justicias*, *Poinsettias*, &c., to be supplied with clear liquid manure, and to have their rambling shoots stopped. Many of the free-growing plants will require shifting occasionally. The great object should be to get rapid growth when light abounds, and thus to secure luxuriant foliage at the right season, when there will be more time for the wood to be properly matured for winter. The syringings to be given early in the afternoon, that the plants may get dry before night.

ACHIMENES.—When grown in large seed-pans they produce a fine effect.

FORCING-HOUSE.

CHERRIES.—Give more air, and keep a drier atmosphere when the fruit is ripening. Give plenty of water to the trees now swelling their fruit. Syringe frequently, and keep the foliage and fruit free from insects.

CHYRSANTHEMUMS.—Pot off as soon as rooted. If not already struck, the cuttings should be put in at once.

CUCUMBERS.—Stop them, and water freely. All that are intended for ridges, if hardened off, should now be

planted out. See that the ball of earth is well soaked with water before planting.

FIGS.—Give them plenty of air during the day in fine weather, with abundance of water. Use the syringe freely, except when fruit is ripening.

PEACHES.—Although a dry atmosphere is necessary to give flavour to the ripening fruit, it is not advisable to withhold water altogether from the roots while the trees are making their growth. Water the inside borders in the morning in clear weather, so that any vapour that arises may pass off during the day. The outside borders, if dry, should also be watered as far as the roots extend, and then mulched, to prevent evaporation during hot, dry weather. If the early-forced trees have naked branches, some of the earliest-made wood may be taken from the trees, and buds inserted from it in the barren parts. Buds inserted now may start into growth in July, and be stopped when about six inches long, to get the wood well ripened.

PINES.—A bottom heat from 80° to 85° must be kept up to the plants intended for fruiting in the autumn. It is advisable, where practicable, to allow the stools from which fruit has been cut to remain in the house for some time; to supply them liberally with water, and occasionally with liquid manure; to encourage the growth of the suckers.

VINES.—In the houses where Grapes are ripening, the temperature may be allowed to rise to 90°, with sun heat, and to decline to 60° at night. In the succession-houses thin the bunches, and do not be covetous to over-crop the Vines, as it is the cause of many bad effects. Stop laterals, and use the syringe freely in the afternoons.

WILLIAM KEANE.

CRYSTAL PALACE GRAND FLOWER SHOW.

INSTEAD of being a grand Show, it turned out a magnificently grand exhibition of flowers and fine-leaved plants, and a triumphant exposition of the energy, skill, and industry of British gardeners when encouraged under a wise, liberal, and free patronage. Depend upon it, the mere free liberty of the subject, which the gardener enjoys here, will go ten thousand times farther in elevating him in the social scale than all the "laws and regulations" ever invented, or put in force, at Chiswick by Dr. Lindley.

Two years after I left Shrubland Park I met Mr. Davidson, my successor there, at a Chiswick Show, and merely turning round to ask him how Lady Middleton and Sir William were, I was tapped on the shoulder from behind: there was the everlasting Doctor, who told us plainly enough he could not allow such evident signs of revolution under the sanction of the Horticultural Society.

Here, at the Crystal Palace, gardeners are not only allowed to speak with each other, but actually to shake hands, to ask questions, to give civil answers, to walk about in groups, to look at and watch and hear what the nobility said about the Show, and the different collections,

as they passed by. But I was exceedingly sorry to hear one uniform exultation among them all at the downfall of the Horticultural Society—no doubt the effect of excessive legislation, still a very bad feeling. Our mother dear at Chiswick Green was only over-anxious, like many others, that her children should have a systematic education: she was only wrong in the means, and in not understanding the right organisation of her own flesh and blood. Here all are allowed to claim a common descent from the original gardener, to enjoy themselves in paradise thus regained. Everybody seems to like all this; everybody goes to see all this; every one you see or meet has a smile or a nice turn of the eye; and, what to me is inexplicable, ladies seem to look here after each other's dresses as much, or nearly as much, as the gentlemen do. Perhaps the reason may be, that, as all dresses are just as safe in the Crystal Palace as if they were under a glass-case at home, there is more time on hand to make observations; more of that comfortable assurance that "all is right," which is the grandest secret in this world for placing a lady in her proper sphere.

The arrangement was, a large circle-stage in the very centre of the building, 140 feet round, rising up, step by step, to a great height, till it ended at the top in the form of a cone, just large enough for a tub to stand on, and the tub big enough for a handsome Norfolk Island Pine, which thus crowned the Exhibition. Below the shades of the far-fetched Pine stood the Derby stakes, the grand competition-struggle for the £25 prizes, which were never more magnificently run for than on that cloudy day. You could hardly see the run in the distance; but, as they neared the winning-post, Dods' Bay was gaining one inch at every "loop;" Peed's brown Puncher was then only one-half of the nose behind; and Page's Fly-catcher, was up neck and neck with Puncher. When the umpires decided this heat we could draw our breaths more freely. Dods was in first; Peed next; and Page next.

Mr. Dods, gardener to Sir J. Cathcart, Bart., had *Acrophyllum venosum*, *Tetralthea ericifolia*, *Erica depressa*, some *Aphelexes*, or "Everlasting," and a blue *Leschenaultia* in the true style of what the best plants should be in a first-rate private collection. The rest were larger than is ever desirable, except for grand fête days. They were yellow Heaths, *Eriostemons*,—all *Eriostemons* being very much alike,—*Polygalas*, *Boronias*, *Epacris*, *Azaleas*, and others, all splendidly fresh.

Mr. Peed, gardener to T. Treadwell, Esq., Lower Norwood, was dangerously close upon the baronet's gardener. His specimens were most remarkably uniform in size, and one size and a half under Mr. Dods' largest. *Vincas* and *Ixoras* were the only two different from the strain of his rival.

The third prize went to Mr. Page, gardener to W. Leaf, Esq., Streatham. He, also, had a uniformly-grown and sized collection of first-rate merit anywhere else. *Ixora*, *Francisea*, *Leschenaultia formosa*, *Dracocephalum gracile*, and *Adenandra speciosa*, different from those who stood above him.

The large collections were so good and numerous, that an extra prize for twenty had to be awarded to Mr. Rhodes.

The next collections were in twelve stove and greenhouse plants. The Messrs. Fraser, of Lea Bridge Nursery, taking the first prize; and Mr. Cutbush, of Barnet, the second. The size and strain of both these collections were admirably suited for private establishments in the country. Heaths, *Eriostemons*, *Azaleas*, *Boronias*, *Polygalas*, *Chorozemas*, *Bossieas*, and *Pimeleas*, were the chief plants, with a fine *Medinilla magnifica*, and a *Stephanotis*, in Mr. Fraser's collection.

Next were the collections in ten stove and greenhouse, all in bloom. Here again the specimens were most remarkably different from the false and faulty standard

which was put up on the plains of Chiswick. Mr. Green, one of the best and the most successful exhibitor in the world, who stood it the longest, and who never opened his lips against rules, or judges, or reporters, or his ears to idle gossipers, carried the first prize in this essential class. His *Tetralthea ericifolia* was splendid; his *Allamanda grandiflora*, *Boronia Drummondii*, *Franciscea calycina*, *Eriostemon intermedia*, *Pimelea spectabilis* (or *spec*, as they say), and *Polygala*, and *Azaleas* were perfect examples of what the great patrons of gardeners should aim at for private enjoyment. Mr. Peed was next to him with plants only a shade less—a large *Chorozema cordata*, two *Eriostemons*, *Polygala*, *Aphelexis*, *Erica depressa* and *Cavendishii*, and others of that stamp. Mr. Tegg was next with a huge *Pleroma Benthianum*, a fine *Tabernaemontana coronaria flore-pleno*, and *Allamanda Nerifolia*, differing from the rest. The third best were from Mr. Kaile, gardener to Lord Lovelace—*Rhynchospermum jasminoides*, *Clerodendron Kämpferi*; *Vinca*, *Epacris*, and *Chorozema Laurenciana* being different from the above.

Collections of sixes came next. Mr. Chilman, gardener to Mrs. Smith, of Epsom, was first here with *Acrophyllum venosum*, *Chorozema Laurenciana*, *Aphelexis*, *Franciscea latifolia*, *Boronia Drummondii*, and a large *Erica Cavendishii*. Mr. Laybank came next with *Adenandra fragrans*, *Epacris pulchella*, *Pimelea spectabilis*, *Polygala*, and a large pyramidal *Cavendish Heath*, and a smaller plant behind it of *Boronia*, which was an oversight. Mr. Hamp was next with the same style of plants. But the third best were from Mr. Carson: fine-sized specimens of *Tetralthea*, *Acrophyllum*, *Chorozema*, *Eriostemon*, *Epacris*, *Polygala*, *Franciscea*, and *Aphelexis*.

Then were the collections of twelve stove and greenhouse plants, in or out of bloom, or variegated, placed for the best effect; for which Mr. Cutbush, of Barnet, came in first. Evident pains were taken in the setting, and the plants were capitally matched. A fine *Maranta capitata*, the first time I have seen it exhibited—a broad-leaved, dwarf, bushy specimen; a splendid *Aspidistra lurida*, *Sansevieria zeylanica*, *Yucca aloifolia*, *Maranta zeyrina*, and *lineata rosea*, very fine; *Croton*, *Caladium*, *Dragon plants*.

In the same class private growers had ten plants; and Mr. Dods was first with a remarkable *Platyceerium grande*, with immense, large-spreading, elk-horn-like fronds in front; a variegated Pine Apple; *Farfugium grande*; the finest *Pandanus Javanicus variegatus* ever shown—it was as close and as far across as an old stool of Pampas Grass, and just that style of make; a great *Caladium bicolor*, and the *Blechnum corcovadense*, which the Messrs. Jackson here keep in winter along with the *Azaleas*. Mr. Young was next. His *Tupidanthus calypttratus* being one of the finest-leaved plants there, in the way of an *Aralia*, long footstalks, and palmate-spread leaves on the top, eight or nine of them making one set; *Caladium*, *Dracæna*, *Farfugium*, and such-like. Mr. Rhodes was next with smaller plants. His *Maranta vitata* was very fine; and his *Platyceerium stemmaria* quite a bush, and called *Acrosticum*—a fine *Farfugium*. Mr. Hamp had a collection of similar kinds. Mr. Summers, of the new "Grass" celebrity, had a prize for a collection of very remarkable plants. His *Cecropia peltata* is a remarkable fine-leaved tree after the *Aralia* make; his Sugar Cane was a grove. His *Aralia papyrifera*, *Solanum purpureum* in bloom, variegated *Hydrangea*, *Clerodendrum Kämpferi*, and others in that style, I booked when I went to see *Spergula pilifera*—the "new Grass," a sample of which was shown by him in another part of the Show along with my "carpet plant," which is very inferior. People must mind they are not taken in and done for by buying plants of the carpet plant, which, as far as I can make out, is not *Sagina procumbens*, but *Spergula saginoides*, which makes it more dangerous for deception, as it may be picked up in nine gardens

out of every ten in the kingdom—a soft weed infesting walks.

The Azaleas were most splendid; the first prize for the largest number (ten) went deservedly to Mr. Carson and to Mr. Green—two of my next-door neighbours. A yellow *sinensis* in each group: *Exquisita* and *Alba superba* to match, in Mr. Carson's, with *Lateritia*, *Murreyana*, *Broughtonii*, *Triumphans*, and *Berryana* all round. Mr. Green had *Symmetry* in addition—*Sir Charles Napier* (a fine large kind), *Iveryana*, *Semiduplex maculata*, and *Coronata*, the clearest colour. Mr. Page was next; *Purpurea* and *Triumphans* being the most conspicuous in his lot.

In collections of eight Azaleas, Mr. Terry was first with *Glory of Sunning Hill*, *Rubra-plena*, *Magnificans* (white), *Criterion*, *Harlequin*, with several kinds worked on one stem, with *Duke of Devonshire* and *Delicata*, were his best. Mr. Turner, of Slough, stood next. *Variegata* was his key-plant for setting; it stood in the front row with *Lateritia* on one side and *Glory of Sunning Hill* (to match) on the other; then two light ones behind—*Criterion* and *Alba lutescens*; and three at the back—two reds on each side of a purple, the purple being *Arborea purpurea*; and no lady could place them better. Mr. Atlee was next, and Mr. Hally, Mr. Ivery, and Mr. Gaines next in the nursery class, and a host of others all with fine plants.

The collections of six Azaleas were not so numerous; Mr. Peed and Mr. Hamp being the luckiest for prizes, but the kinds not much different from the above. Mr. Ivery had a large collection of different kinds of Azaleas edged with his *Rosy Circle*, a very dwarf, bright, lively bloomer; *Model*, *Gem*, *Crispiflorum*, *Admiration*, *Sir James Outram*, and *Criterion*. Mr. Turner had in his tens, for which he took a first prize, *Petuniaeflora* (a remarkable new style of bloom), and *Prince Jérôme* (very rich). Among a large lot of cut blooms from Mr. Ivery was one large, light kind, called *Flower of the Day*, which he places high in the scales.

Heaths were not so numerous. Mr. Peed took first and second prizes for sixes; Mr. Green was next, followed by Mr. Frost and Mr. Chilman; but I need only mention those which had the first prize for a nurseryman. Mr. Cutbush, of Barnet, who had eight kinds—*Albertii superba*, *perspicua nana*, *favoides*, *elegans* (which was called *glauca* in another collection), *depressa*, *florida*, *Ventricosa coccinea minor*, and *Beaumontiana*.

Then followed collections of tall Cacti, the best specimens yet exhibited. Mr. Green takes the lead in them; but Mr. Bunn and Mr. Summers were hard upon his heels. Mr. Green had a huge plant of *crenata* in fine bloom; his others were of the *speciosa* breed. Mr. Bunn had also a *crenata Egertonii*, which is of the whipcord kind; the rest of *speciosa* breed. Mr. Summers had a remarkable seedling of the *speciosissimus*, the finest of the race, and called *Scott's Seedling*, and a light orange one, which is also new, and called *Pfersdorff's Seedling*.

Twenty-four kinds of cut Tulips and twenty-four cut Verbenas from Mr. Turner next. Cut Pansies from Mr. Shenton next. Six Hippeasters from Mr. Gaines; but mauled sadly in St. James's Hall the week before.

Fuchsias were not so good as they will be; nor were they placed right for effect. Strange that any one could place colours and habit so as to ruin both, as far as effect goes! Mr. Elliott was first placed, three and three—*Venus de Medici*, *Souvenir de Chiswick*, alias *Fairy Queen* (white), *Snowball*, *Voltigeur*, and *Madame* something.

After the Fuchsias was a fine collection of Everlastings, or kinds of *Aphelaxis*, from Mr. Laybank.

Then six fine plants of *Centaurea candidissima*, the best silver plant, and six beautifully-grown plants of variegated Coltsfoot from the Messrs. Lee, who recommend this Coltsfoot for edgings to flower-beds; but I would much sooner order Morrison's pills to a newborn

babe. This very thing has got hold of my bed of early Cabbage, and I despair of ever getting rid of it; and it would most certainly ruin the best flower-bed in England in three years. Yet it is a most beautiful leaf.

Then a collection of novelties from Mr. Veitch—*Aphelandra Portiana* being the best, and *Begonia amabilis*, from Assam, the next best, having a neat small leaf clearly marked with a light, broad "horseshoe," as one might say, or *foliis zona notatis*, as a botanist would say. *Begonia Queen Victoria* is not at all worthy of that name; it is like a seedling from Reichenheimi—*argentea* is distinct, a large leaf of one colour, and the richest yellow flowers. *Isoplexis sceptrum*, a tree Foxglove, having the habit and leaf of some *Anchusa*, and a central spike of bloom, the flowers crowded on the top part, and dingy yellow, and of the size of a Foxglove flower three-parts grown; and some beautiful small Ferns, some of them under bell-glasses.

In another part of the Exhibition, Mr. Veitch exhibited the lovely little variegated *Pothos* I mentioned from the hopeful at St. James's Hall; also one of the *Wellingtonias* which were there; and the best of all his novelties, the Holly-like Olive from Japan; also a very pretty-looking Maple from the same, called *Acer Japonicum polymorphum*. It seems a slender thing, and the young leaves are purple like some of the old kinds when they first come out. Here stood two plants of *Rhododendron Dalhousianum* from Mr. Paul, of Cheshunt, with their Lily-like primrose-coloured large flowers. Two months back it was in bloom at Brahan Castle, near Dingwell, the seat of the once-powerful chieftain of the Mackenzies. By the side of these stood a very pretty variegated Geranium, from Mr. Turner, with white, green, purple, orange, and scarlet in the same leaf; the name is *Picturata*. A wrong use of that word—he meant *Picturatum*. If we do not keep to the old rule of the adjective agreeing with the substantive, in "gender, number, and case," we shall have the Universities down upon us again.

Calceolarias came next; few of them, and nothing particular about the kinds, unless it is that one collection of nine kinds, after the *Kentish Hero* breed, may turn out to yield good bedders. We shall see.

A large collection of Cacti, from Mr. Summers, by the side of his *Spergula pilifera* (not *pilosa*). All true to name. A rare thing with them. One of them called *Echinocactus myriostigma*, I gave Mr. Low forty guineas for a match pair of them, the first that were introduced twenty-two years back this summer, and I was pleased to hear that the tribe was beginning to attract attention once more. Then a bank of British and Foreign Ferns, and odds and ends, and cut Roses. But stop till I come to Roses, and then ———.

ORCHIDS. — Beautiful, splendid, numerous, fine, and most brilliant. Mr. Dods first in tens, and Mr. Green first in sixes. £10 for the first; £5 for the next. £10, also, to Mr. Wooley, for fifteen plants. £15 to Mr. Carson, for his fifteen-plant collection. £15 to Mr. Gedney, for ditto. £20 to Mr. Bullen, gardener to J. Butler, Esq., Woolwich, for a twenty-plant collection. Besides the smaller sums, and those who went with no prize, and who can say Orchids are not still the rage at Shows? I can only point out a few here and there, taking them in the order they stood. Mr. Green had *Oncidium lanceanum*, and he is almost the only grower who does it well. Mr. Page, who had a second prize for sixes, had *Cymbidium aloifolium*, with eight or nine long, drooping spikes of bloom. This, the oldest in the book, could not be seen in bloom at all till very recently. Mr. Dods had the finest *Dendrobium densiflorum* that was ever exhibited; and *Lælia purpurata*, with nine magnificent blooms. Mr. Wooley the same *Lælia*, very fine, with five blooms. Mr. Gedney, *Lælia cinnabarina*, *Dendrobium albo-sanguineum*—a fine thing, *Chysis bractesceus*, *Lycaste Skinneri*, and *Phaius Wallichii*, among the best. Mr. Carson, *Burlingtonia rigida*, very large; *Dendro-*

bium aggregatum, one solid mass of the clearest yellow, almost two feet across; *Vanda teres*, never better; *Camarotis purpurea*, ditto. Mr. Bullen, *Cælogyne Lowii*, with five monstrous spikes; *Epidendrum bicoratum*, the most lady-like, the most difficult Orchid to introduce alive, and the most difficult to bloom well, of all the Epidendrums, a love of a thing, and all but white; his Chyses, Aërides, Vandas, and Saccolabiums, were equally fine, but, unfortunately, the writing of all his tallies was a bastard cockney style of sign-painting for pork-pies and sausages!

Then there was one collection of early Achemenes, and too early for them.

Pelargoniums next, and they were good for a May Show, June being their month; they began with seedlings from Mr. Turner, and Mr. Beek. The only step out of the common was *Rifleman*, in Mr. Turner's group. *Rifleman* is a downright good thing; and the next generation will not hear the end of it as sure as we were born. The style of it is the French, spotted all round; the colour is taken from *Governor-General*. *Bridesmaid*, in Mr. Beek's, is an improvement on the *Bride*. Mr. Turner was first, as usual, with a collection of twelve, in three rows, and this is how he placed them, beginning each row from the right-hand side:—

First row. *Symmetry*, *Empress*, Mr. Marnock, and *Etna*.

Second. *Sanspareil*, *Rose Celestial*, *Governor-General*, and *Viola*.

Third. *Review*, *Mazeppa*, *Carlos*, and *Candidate*.

Mr. Dobson was second, and Mr. Windsor third, and Mr. Gaines had an extra prize—all in twelves.

In tens, Mr. Wiggins, gardener to E. Beek, Esq., the great florist, was first, with *Bride*, *Fairest of the Fair*, and *Vestal*, three whites; *Fair Hellen*, the next light; *Sanspareil*, *Governor-General*, *Hesperus*, *Laura*, *Fanny*, and *Wonderful*. Mr. Weir, gardener to Mr. Hodgson, second, with *Luey*, *Empress*, *Petrucio*, and *Conqueror*, being different from the others.

There were eight or ten collections of Fancy Pelargoniums in sixes. Mr. Turner taking the lead with the charming *Madame Van de Weyer*, the celebrated *Madame Sontag*, and *Madame Rougière*, *Attraction*, *Rosabella*, and *Acme*—the acme of perfection and feeling, one should say. Mr. Gaines was second; and for private growers, Mr. Weir was first with *Jenny Lind*, *Delicatum*, *Princess Alice Mand*, *Lady Hume Campbell*, *Lady Alice Peel*, and *Annette*. Mr. Gaines was second; Mr. Holland and Mr. Windsor both third; and Mr. Rolland had *Cloth of Silver*, an improvement on *Delicatum*.

Then Roses, and such Roses as no man living had ever seen before. Mr. Lane was first; Mr. Francis second; and Mr. Paul third. Among amateurs, A. Rolland, Esq., was first, and Mr. Terry second. All the kinds have been told a thousand times. *Général Jacqueminot* was the highest colour; *Géant des Batailles* was never seen half so good as it stood at the end of Mr. Paul's group; *Chenedolle* and *Coup d'Hebe*, were most magnificent: a nobleman who stood near, said that *Coup d'Hebe* is Her Majesty's favourite Rose; *Souvenir d'un Ami*, as a blush Rose, and as pure white as the driven snow, and as creamy as cream cheese, was in the stands in all these colours; *Paul Ricaut*, and *Paul Perras*, just the same colours as they always show; *Devoniensis* was never done so before as it was by Mr. Francis; and *Gloire de Dijon*, in Mr. Paul's, the same; and the same of *Chenedolle* and *Blairii* No. 2, by Mr. Rolland.

A specimen plant of *Genetyllis macrostegia*, from Mr. Dods, was admired as the best of that group by every one who knows them; and a *Daviesia*, wrongly called *Umbellata*, took a prize to Mr. Green.

Mr. Turner had a gay set of Cinerarias, of which *Eclipse* and *Brilliant*, two selfs in two shades of purple, were most beautiful, and most admired.

FRUIT.—The fruit, except the black Grapes, were not first-rate, or very plentiful. Mr. Hill and Mr. Frost were neck and neck with splendid black Grapes, and both

took first prizes. Basket of 12 lbs. of black Grapes, Mr. French, Burnham, Bucks, first. Second best to Mr. Davies, Hammersmith. The first prize for white Grapes went to Mr. Euston, gardener to Sir James Duckworth, Exeter; the second to Mr. Chambers, gardener to Lord Southampton; and the third to Mr. Bones, gardener to J. Barnett, Esq., Woodford, Essex. Mr. Gillham took first and second prizes for Pines, and Mr. Constantine, gardener to C. Mills, Esq., Uxbridge, took the first prize in Peaches. Mr. Smith, the great Strawberry grower, took the first prize with a splendid dish of *Sir Charles Napier*. I could not get near to note the rest of the prizes for the crowd.

The fountains played beautifully at four o'clock; but the wet kept the crowds to the front galleries.

The Tulips were still in prime order on the terraces. The beds were ready to plant lower down. The Rhododendrons, Azaleas, and tree Pæonies, were splendidly in bloom, and the cold seemed to do less harm than in more sheltered places.

D. BEATON.

PINE APPLE CULTURE.

(Continued from page 90.)

5. MOISTURE.—This, likewise, must be proportioned to heat, sunlight, and the season of the year. In winter the soil should not be dry, but it should be dryish rather than wet. In mild weather, the fire heat being moderate, the soil will not dry quickly if the pots are plunged. In severe weather evaporating pans should be placed on the heating medium, a little water be sprinkled on the path, the surface of the bed syringed, and even the plants gently dewed from a fine syringe in a sunny day. If the atmosphere be thus kept moist the plants will suffer little from dryness. In tank-heating, like our correspondent's, it will presently be seen that it is easy to give moisture to the atmosphere, and also supply moist vapour to the plunging medium from beneath, so that the soil in the pots may safely be dry rather than wet. In dull weather in winter I have preferred watering the tan, or other plunging medium, instead of watering the soil in the pots. The pots and their soil absorbed about as much moisture as they wanted. The perspiring power from the leaves in such circumstances is reduced to a minimum, and, therefore, the roots should not be kept in a saturated state. There is less danger if even in winter there is a likelihood of a few sunny days. In summer waterings may be given freely, and syringings frequently in the afternoon.

6. AIR.—This, too, must be given in proportion to the season, so far as quantity is concerned; but if the roof is at all close, a little to change the atmosphere should be given every day. Paradoxical though it may seem, it is no less true, that fresh air is most wanted in dull, muggy weather. Then it helps to counteract mere expansion by heat. In summer, in bright weather, air must be given somewhat freely to keep the heat in due bounds beneath glass. In clear frosty weather, in winter, it should be given rather sparingly; a little given early at the highest point of the roof will generally be sufficient. It is better, instead of giving much, to let the fires out in the morning.

7. SHADING.—This will be less wanted in our correspondent's case, as the Vines will be apt to give rather too much shade at times. If air is given early, to prevent the house rising rapidly and heated vapour accumulating, shading will be little necessary, unless when the plants are not established at the roots, and they stand very close to the glass, or very bright weather suddenly succeeds that which was just as dull and cloudy. A slight shading will be advantageous in the first case until the roots are freely at work, and, in the last case, until the plants are used to the change; but, as a rule, the more sunlight the plants have the sturdier they will be.

8. INSECTS.—The worst are the white scale and mealy

bug. The best, cheapest, and safest remedy is strong glue water, or a strong steam from fresh dung. If the insects have got to the roots, that will not destroy them; and, in fact, the most economical plan, whenever they have got such hold, is to destroy the plants, and then wash the whole place with water as near the boiling point as possible, and fresh plaster and paint the whole place, and get a fresh clean lot of plants. If a few bugs lodge in a cranny of brickwork, or other opening, all the labour of cleaning the plants will go for nothing.

So much for general culture. Now for our correspondent's tank case. It will be seen that we do not think anything will be gained by growing the plants in pots exposed to sun and air. The tank is in the middle of the house; and we would, therefore, recommend a modification of the plan shown in page 226 of the last volume, No. 537. He may either place a pit or a frame above his tank, and either eighteen inches in height, or fifteen inches might do. The top of his tank might then be covered with four or six inches of clinkers, or brick bats, and a plunging medium of tan, or even sawdust above. Slides at the sides might let out heat and moisture from among the clinkers, or a thin half-inch board might separate the outside wall, or frame, from the plunging material by one inch and a half or so, which would save the outside wall if of wood. In this opening water could be poured at pleasure down among the clinkers, which would give any amount of vapour at will. A narrow board, two inches wide, laid along this opening would prevent the vapour and heat rising to any great extent when you wished to throw more heat and moist vapour into the plunging material. Under some such arrangement, we have no doubt he will be able to grow Pines well in his span-roofed narrow house, and be moderately successful with Vines and stove plants besides. Though he might in these circumstances succeed by growing them in a bed of soil, yet if he have not had much experience in this branch of gardening, we would advise him first to master their culture in pots, and at any rate to keep them in pots until the plants approach the fruiting stage. Plants in pots are more easily managed by the inexperienced.

R. FISH.

THE CAUSES OF BARRENNESS IN CERTAIN FRUIT TREES.

So many and singular phenomena concerning the principle of fructification in our garden fruits have presented themselves during my long acquaintance with gardening pursuits, that it is well worth while to examine them, in order to ascertain if there are any facts bearing on future progress.

That the knowledge of a disease is half its cure, is an axiom which I think few will feel disposed to deny; certainly not an intelligent and experienced gardener. There can be no question but that many an ingenious mind delighting in gardening, yet unpractised and inexperienced, has sighed in secret for a key to open on those anomalous singularities in the vegetable world which appear, at first sight, to lie beyond the ken of man. But it would seem that when these difficulties are scrutinised in earnest by experienced and observant eyes, they lose half their importance, and the hitherto-mysterious becomes at last "familiar as household words."

As fitting subjects to illustrate the matter, I may take the Pear, Apricot, Apple, Plum, and Peach, to begin with.

THE PEAR.—It is a fact with which gardeners are perfectly familiar, that old and barren Pear trees may be made to bear exceedingly well on the extreme points, if such be carried over the wall, and trained reversely on the other side; and the fact, doubtless, first suggested the idea of reverse training, saddle trellises, and other arrangements tending to the same end. This naturally raises

the inquiry—What is the reason that old Pear trees are so apt to become gradually barren, and yet continue in health? In examining this case, I would have it borne in mind that our ordinary modes of training are quite artificial: Nature recognises no set mode. We have next to inquire what is the character of old Pear trees in a state of nature. Here we shall find that although an old orchard Pear tree will, in some parts of the kingdom, produce thirty, and more, bushels in one season, yet the great body of the fruit is produced mainly on the extremities. Now, the main boughs of such trees will extend from thirty to forty feet; and let any person examine the portion between the junction joint and the extremity, and either nakedness or a lot of barren spurs will be the result. It might here be argued, that had these trees received annual pruning such would not have been the case: but this is so dispendable a position, that I do not think it worth while to enlarge upon it. One fact I may here point to of importance in this question—grafts of any decent bearing kind inserted in those barren portions will bear famously for a few years, and afterwards gradually merge into that barren condition which so much perplexes us. It is, therefore, pretty evident that it is no fault in the circulation or dispersion of the sap in those portions of the tree, but from a tendency in the tree by nature to push on the fructifying principle towards the light, whereby grafts taken from the extremities of bearing trees possess a very different property, in this respect, to succulent and adventitious shoots taken from the fruit-deserted portions of the main branches. Another point may be here noticed. The first flow of spring sap rushes to the extremities first; and the side-buds in the barren portions complained of are comparatively neglected until these monopolising extremities are girdled. The consequence of all this is, that the extreme portions are much in advance of the others through the earliest part of the season, or, in other words, have a longer period for maturation; for most of the impulse which takes place in the lower portions of the branches is weeks later than that at the extremities. From all these circumstances, we may rest assured that it is almost impossible to continue Pears in a full bearing state to a great age. The pruning knife is, in general, an enemy to fruitfulness when there is very much demand for its use; but, of course, there is no dispensing with it entirely. We should, however, so limit the roots, that the labours of the knife may be reduced to a minimum.

THE APRICOT.—This tree may be made to produce natural spurs throughout the whole of the branches by good management. It is seldom we meet with a case of barrenness through lack of spurs, unless the trees are gross, and breast-shoots are allowed to prevail. Bad crops are chiefly attributable to defective blossoms and to spring frosts. Nevertheless, I have seen many cases in my time of Apricots growing too exuberantly with the watery breast-shoots of summer untrimmed, unstopped until nearly autumn. Here is, at once, a cause of barrenness. I know of few trees, the would-be blossom-spurs of which so ill bear a cold shade, which such shoots assuredly produce.

Whilst I am writing about Apricots, I may just advert to that awkward circumstance, so well known, of whole branches of established trees dying with little or no notice. This has puzzled alike both theoretic and practical men. But I would here ask, How is it that we seldom or never find subordinate shoots thus decaying, or, let us say, younger branches? My opinion is this: (and I believe I have expressed it before in *THE COTTAGE GARDENER*)—the Apricot bole, or main branches, do not enlarge or thicken, as most other fruit-bearing trees; they look what is practically termed hide-bound, when compared with similar parts in Apples, Pears, Plums, Cherries, &c. The sap vessels, therefore, become tightened by early induration of the woody parts, and constriction or contraction of the vessels places certain branches in a

position to be easily dried up, or, in other words, their supplies cut off. Just below such ill-fated branches we may generally observe a young branch or two, which, a season before the complete decay of the declining branch, assume unusual vigour; for the sap through the constriction of the original branch has already evidently begun to create new channels; and from the commencement of the vigour of those young branches may be dated the decline of the original branch. If these opinions are right, we may at once infer that it is unwise in practice to permit any shoots to assume a gross character near the bole of the tree. R. ERRINGTON.

(To be continued.)

HINTS WHEN TO TILL.

NOTWITHSTANDING the many improvements which mechanical science has afforded us for tilling the ground, and notwithstanding the general dissemination of knowledge directing when that operation ought to be done, Nature still has her all-important duties to do as well; and no skilled implement, however ingeniously contrived, can form a substitute. True it is that much assistance may be rendered; and a judicious preparation of the soil in due time enables the duties, which Nature alone can perform, to be accomplished in a shorter time than they would have been if left entirely unaided. There being seasons in which this assistance may be more called for than in others, it is well to consider this and act accordingly—the subject being of much consequence to the cultivator of the soil. A few words will explain to the inexperienced what is meant to be acted upon in each case.

Since man was condemned to till the ground and eat bread by the sweat of his brow, various have been the means by which the tilling process has been accomplished; yet it is not saying too much, perhaps, to affirm, that the inhabitants of fully one-third of the earth's surface are contented to use the same primitive tools that were used in the earliest period of the world's existence. Scratching the ground with a crooked stick, and depositing the seed, and brushing it over with the bough of a tree, completed the operation. A repetition of this duty, no doubt, led to the discovery of the best time to do it; and satisfied with this extent of horticultural knowledge, the poor benighted African and other barbarous races have continued without any advance for centuries. A less genial climate, and soil not so prolific, no doubt sharpened the ingenuity and excited a greater amount of industry on the part of those occupying a more northern latitude: hence the superiority we have arrived at in this all-important branch of national economy, the last few years having added considerably to our knowledge of this particular branch of tilling the ground. If the agent now on trial—steam—become as useful and tractable in this hitherto-laborious work as it has become in carrying us and our goods to different parts of the kingdom, the present age may justly be regarded as having witnessed a greater revolution in pre-existing maxims and ideas than any given period of the world's history of many times its duration. It is not the purpose here to discuss the merits of the various steam ploughs now before the world, and their adaptation in stirring the soil so as to promote its fertility; but to say a few words respecting the best time for such soil-stirring, when done in a more primitive way—by the hand—as is usually done in gardens.

In stiff retentive soils, in wet winters with little or no frost, the ground becomes soddened; and continued wet keeps it so. Should frost occur when it is thus charged with water, the enlargement of its parts by frost enables the air to penetrate it more freely when mild weather returns. This, combined with the action of the frost, separates those adhesive particles which constitute its stiffness, and a more open texture is the result for the time. But this is not a permanent change; as an inju-

dicious treading over it when it is still moist will consolidate it into a mass nearly, if not quite, as compact as before. Now, this treading at this particular time ought to be avoided: consequently it behoves the cultivator so to arrange his work as to manage to put in the crops required for such ground while the weather is dry, if possible. In certain seasons this cannot well be done; but it is often advisable to delay a few days on this account, the good condition of the ground being of much consequence to the after-welfare of the plant. This is more especially the case where things have to be planted, as the ground where seeds are sown sometimes improves while the seeds are germinating, so that it is not advisable to wait very long for the proper sowing time, unless under very peculiar circumstances; and even then some contrivance will often enable the work to be accomplished in another way, when a prolonged wet spring retards the ordinary process.

In very wet, stiff soils, and in wet springs, the ordinary mode of sowing Onions, Carrots, Beet, and similar crops in continuous rows, may be departed from, and they may be sown broadcast in beds four feet wide, taking care not to sow too thick; and to be equally careful to thin the plants in sufficient time to enable them to grow out. If the alleys between the beds are only about fifteen inches wide, the plants growing at the edges will overhang and occupy the most of it during the summer, and the total crop will be little short in quantity and quality of that grown in the ordinary way; while the alleys will afford facilities at all times for getting at the plants without injury to the ground, which is a matter of importance in some places. In other soils pressing and consolidating them are of service rather than an injury, as is the case in sandy or peaty soils, which allow the air to penetrate them too freely; for the more freely it can be made to pass through clayey soils, the sooner it is likely to improve.

The above advice is given to overcome the evils of a wet soil and moist spring; but a difficulty often arises from an opposite cause. A stiff soil becomes hard and cloddy in a dry season, or, rather, hardens instead of mellowing down in March, when a mild winter has not aided it by any frost of consequence. Some soils are very obstinate from this cause, and it is difficult to overcome their adhesiveness. Perhaps one of the best ways is to sow such garden seeds as must be sown at a certain time, and to cover them with a little fine soil brought from somewhere else. It would even be better if a good bed of this soil were made for such seeds to germinate in; and the quantity it takes is not such a serious matter after all. Sifting some leaf mould, dry earth, and ashes, or anything conveniently handy, and spreading a little of this over the ground, will enable the seed to make a start; and by that time it is likely the dry east winds will have pulverised the natural soil into a fitting medium for the plants to grow in, and they may succeed pretty well after all.

Evils like the last may often be obviated by having the ground dug up early enough in the autumn to get what, in local phrase, is called a crumby surface, even when the winter has been wet and mild; but it often happens that plots of ground cannot be cleared in time for it to have a whole winter's fallow. In this case some contrivance like the above will be required; and it is surprising how grateful Nature is for such assistance rendered her. It very often happens that the best crops proceed from some of those unpromising cases. When it is so, there is the gratification of having made the most of circumstances:—a maxim that cannot be too strongly enforced on all, as well for other duties in life, as for making the most of a stubborn soil and an awkward season.

J. ROBSON.

SHADING.—As every person's experience should be recorded for information to others, I venture to trouble you with an account of how I "do" my shading for Cucumbers, as they require

"light in proportion to heat." I could not reconcile my mind to the mat shading—it seemed to make the plants look so unhappy. This season I have rigged up a shade of tiffany; first sewing it two widths together to make it wide enough (six feet), and then mounting it upon two splines, one top and one bottom. The Cucumbers thrive first-rate, and there is not the slightest risk of scalding from the sun's rays. To indolent or busy folks it is invaluable, as, if it is put on about nine o'clock, it may remain without any attention till two or three.—G. W. BURTON, *Southtown*.

ACHIMENES.

To have these early and in succession, introduce a few at different times into a moist heat from January to the end of May. For the last crop, the little scaly tubers should be kept after March in a cool place, free from frost, or they will spring and exhaust themselves before potting. Many admirers of these sweet little things have no means of exciting them early; and yet look to them to help make their house gay in the autumn months, when Geraniums, &c., are past their best. May will be quite time enough for them to pot their tubers. Supposing they have been kept dry, and in a cool study, safe from frost, they will be starting of their own accord, whether they have been kept in sand, or in the pots in which they last grew. Shake the tubers clean of all earthy matter, without breaking them, which is very easily done. Prepare some sweet well-aired soil, neither wet nor dry, consisting of about equal portions of fibry loam, peat, sand, leaf mould, or very old decayed cowdung, that has been sweetened and dried by exposure. Pans three to four inches deep would grow them well, if drained properly. Pots will also do well enough; and, in this case, the strongest tubers should be placed in the centre, so that when covered the soil will be from one to two inches from the surface. This provides room for one or two surfacings of rich top dressings, which greatly assist the plants, and cause them to keep healthy and bloom longer. For a six-inch pot, from six to twelve roots will be enough, according to the strength of the variety. Larger pots will require more. To ensure symmetry in outline, it is best to start the tubers thickly at first, and when two or three inches high, separate them and place them in their blooming-pots, as you can then place your strongest shoots and roots in the centre. For encouraging them at first in a common greenhouse, the pots or pans may be placed in a shaded hand-light, and kept close, or a little box may stand in one corner, covered with a large square of glass, or a piece of glazed calico. These means will keep the pots warmer and moister than the general air and temperature of the house. A single light shut off in a cold pit will answer the same purpose. After the plants are up and growing freely, the chief things will be giving plenty of moisture and air, with shade at first in bright sunshine, and so regulating air and shade, that the powerful rays of the sun never strike the plants until the foliage has previously become dry, or there will be danger of sun printing. After commencing to grow freely, the plants may safely be treated as if they were half aquatics. When the plants show signs of fading, then curtail water, and ultimately let them get quite dry in the sun, which will mature fine tubers for next season.

R. FISH.

WILD MUSHROOMS IN JANUARY.—Your correspondent, "G. JENNER, St. Julian's, Seven Oaks, Kent," mentions his having found Mushrooms, growing wild, in the meadows, last March. I beg to inform you, that on the 6th January, 1853, I gathered about one gallon and a half of that delicious fungus, in an upland field, in the vicinity of our ancient city. And on the 8th, 11th, and 24th, of the same month, I picked up a few more each day. I made some catchup from a portion of them, and the flavour of it was equally as good as though they had grown in the proper season.—WM. BRENT, 2, *Military Road, Canterbury*.

THE SCIENCE OF GARDENING.

(Continued from page 94.)

Magnesia, generally present in soils, is soluble in water, and is found in many plants. Indeed, lime and magnesia in combination with phosphoric acid exist in all plants. They resemble each other very much; and some facts are known which seem to show that they may take the place of each other. In all our published analyses of Wheat, Oats, and Barley, the proportion of magnesia greatly predominates in the grain, while that of lime is larger in the straw. This is not in favour of the view that they are capable of taking the place of each other in the several parts of healthy plants.

On the other hand, in the Tobacco leaves from the Bannat, Will and Fresenius found the potash much less than in other varieties, while the magnesia was much greater—as if magnesia as well as lime could take the place of potash. The same was found by Hruschauer in the stem of Indian Corn. Of the inorganic matter present in the mature leaf and stem, however, we do not really know how much is accidentally present, and how much is essential to its healthy existence. We must, therefore, defer our judgment in regard to this point.

The most apparently decisive experiments on this relation of lime and magnesia are those upon the composition of Linseed. German Linseed, of which the ash was analysed by Leuchtweiss, and specimens of Riga and Dutch seed examined in Professor Johnstone's laboratory by his assistant, Mr. Cameron, contained respectively of lime and magnesia in their ash—

	German.	Riga.	Dutch.
Lime	25.27	8.46	8.12
Magnesia.....	0.22	14.83	14.52

These analyses, if they are to be depended upon, show that magnesia may either be almost entirely wanting in these seeds, or that it may be present in large proportion, and that, when magnesia is scarce in them, lime is abundant. In other words, that these two earthy bases may, to a certain extent, replace each other.

Iron is present in all soils, in all natural waters, and in all plants.

Manganese is found in some soils, is soluble in water containing acids, &c., and is found in a few plants.

But none of those substances in a state of purity, either simply or combined, have ever been found capable of perfecting a plant through all its stages of growth when moistened only with distilled water; the contrary is the case, however, when the water contains in solution vegetable or animal matters, as the dung of animals. Now these matters contain carbon, hydrogen, oxygen, nitrogen, and various salts: the three first are absolutely necessary for the existence of all plants, every part of which is chiefly composed of them. Nitrogen is found in most plants; and the importance of salts to vegetation is demonstrated by the facts that Clover will not flourish where there is no sulphate of lime; that Nettles follow the footsteps of man for the nitrate of potash, which always abounds near the walls of his habitation; and that marine plants linger for the common salt of their native haunts. Salts of some kind or other are found in every species of plant, but none of which the constituents have not also been detected in soils. During decay, vegetable and animal matters also exhale various gases. Carbonic acid, hydrogen, carburetted hydrogen, ammonia, &c. are of the number; all of which have been applied to the roots of plants with great benefit by Sir H. Davy and others.—J.

(To be continued.)

ENTOMOLOGICAL SOCIETY'S MEETING.

THE May Meeting of the Entomological Society was held on the 2nd inst.; H. T. Stainton, Esq., Vice-President, in the chair. Amongst the donations received since the last Meeting were the publications of the Linnæan Society, the Society of Arts, the Royal Academy of Bavaria, and Mr. Wilkinson's new volume containing descriptions of the British Tortrices, forming a companion volume to that published by Mr. Stainton upon the British Tineæ.

Mr. Samuel Stevens exhibited a number of new and beautiful lipidopterous insects, recently captured in New Guinea by Mr. Wallace.

Mr. Westwood exhibited a number of specimens of *Oxytelis sculptus*, one of the smaller species of Rove Beetles, which had been found by a correspondent upon young Cucumber plants

after dark. Four different sowings of these plants had been destroyed without any trace of the depredator being visible during the day; hence it was supposed that Woodlice were the cause of the mischief. But, on being examined with a light after dark, vast numbers of this Rove Beetle, with a few individuals of two small species of Philonthus, were captured, and were accordingly at once regarded as the real culprits; an opinion which Mr. Westwood thought probable, although contrary to the generally-received opinion of the insectivorous habits of the Staphylinidae—an opinion also apparently confirmed by the great numbers of these insects found on decaying fungi, boleti, and dung, where they apparently feed on the vegetable matter; as was also the case with the larva of one of the species described by Mr. Walford in the "Linnean Transactions," which destroys young Wheat plants by gnawing through the stems. Several members present, however, dissented from this view; and Mr. F. Smith especially mentioned *Oxyporus rufus*, which, although always found in fungi, is evidently from its structure a very voracious insect feeder. Mr. Westwood also exhibited both sexes of a remarkable hymenopterous species from South Africa, belonging to the Aculeata, but furnished with bipectinated antennæ in the male sex. Also three very interesting additions to the British lists—namely, 1, *Blatta acervorum* of Panzer, forming the type of the genus *Myrmecophila*, and forming in the system of Mr. McLay the connecting link between the cursorial and saltatorial orthoptera, taken near Netley, in Shropshire, by Mr. Hope; 2, *Bethylus* (*Pristocerus depressus*), a hymenopterous insect, being one of the connecting links between the Terebrantia and Aculeata, also taken by Mr. Hope in Shropshire; and 3, *Drymus formicarius* of Latreille's genera, remarkable for the anomalous structure of the fore legs, taken by Dr. Baly near Cobham. Mr. Westwood also exhibited various species of Ptinidæ in the larva and perfect states, and other insects found boring in and gnawing the covers of books, especially manuscripts from the East.

Mr. W. W. Saunders read a memoir containing descriptions of some very remarkable dipterous insects, recently captured in New Guinea by Mr. Wallace; the males of which have the head armed on each side with a large horn-like appendage.

Mr. Wallace also sent a paper containing observations in opposition to the custom of publishing highly magnified coloured figures of small insects, as tending to give an inaccurate idea of their real size and form. Mr. Wallace's remarks, however, failed to meet with support, as all the members present considered that highly magnified figures were of the highest utility in entomological science.

NOTES ON SOME BEDDING PLANTS.

In your invaluable gardening periodical for August, 1858, you recommend *Viola calcarata* for summer bedding for the flower garden. I used it eight years since, but only in an ordinary way. A thousand thanks for your directions to ensure its blooming through the summer. I have a purple Pansy, in shape of flower not unlike the *Viola*. It is an immenso bloomer, treated as you do the *Viola*, and, what is most in its favour for continuance, it never seeds.

I have a large quantity of the *Aubretia purpurea* you extol so highly in THE COTTAGE GARDENER for last month. Most of my plants measure eight to ten inches across. Do they seed?

I have two mixed herbaceous borders, fifty yards long. Each side a broad walk edged with the *Aubretia* and a good variety of red Daisy, plant for plant of each. I can honestly say they have been beautiful for two months past. And I have two large beds of yellow *Doronicum Austriacum*, edged with the purple *Aubretia*. Accepting the name of *Lilac Chain* for this, allow me to call *Erica herbacea* the *Red Chain*. I have six beds edged with it; each bed measures fifty-six feet round.

I have two varieties of *Lamium maculata*: one sort in particular has been much admired for some time—it might be called a *Red Chain*. And of *Arabis grandiflora alba* I have two mixed herbaceous borders, 150 yards long, each side of a broad walk, this plant being the edging, on an average (one row) eighteen inches wide; which almost resembled flakes of snow for nearly six weeks. I may add that I grew *Cerastium tomentosum* as an edging eight years ago. *Pulmonaria officinalis*, or *Virginica*, and *variegata*, are not to be despised for spring flowers; and the foliage of the latter, when well grown, has been much admired in summer.

There is an old saying that so and so was born with a silver spoon in his mouth. I often wish some of the silver-spoon

gardeners (if I may be allowed to use such a comparison), who have the means in labour, &c. at command, would but devote the same amount of attention to our much-neglected herbaceous plants—"The Hardy Plants for the Many"—that they do to their pet stove and greenhouse plants; and record in the pages of THE COTTAGE GARDENER the treatment each requires to attain certain results, the time, continuance of flowering, &c. I should think many hitherto-neglected might be added to the list of hardy plants for bedding in spring and summer. In May, 1857, I solicited an answer as to what plant would do in lieu of *Perilla* (for colour of leaf), for spring; but never yet have I seen any interested about knowing what plant would be a substitute. Would you like to know? [Yes, certainly.] Shall I send you a plant in a letter to prove it? [Pray do.] I shall be very glad to give in exchange plants for spring bedding for *Verbena venosa* and bedding Geraniums.—JAMES KIDD.

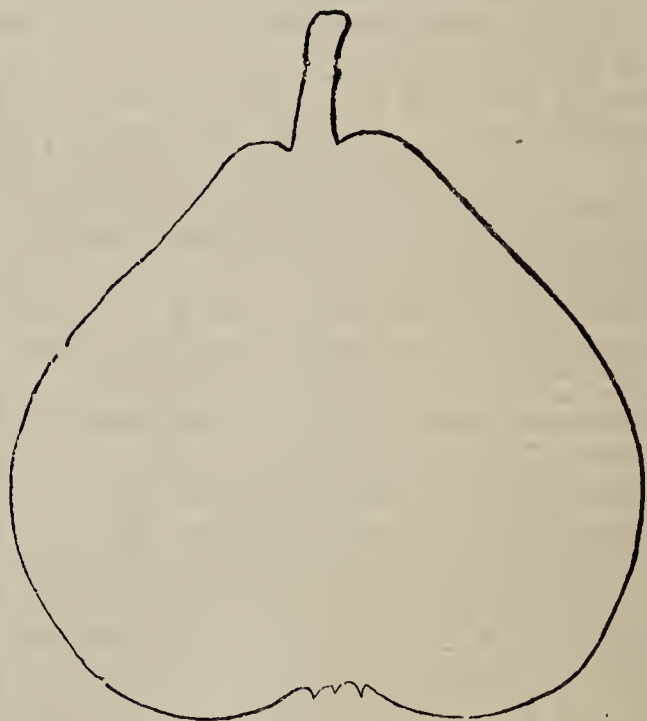
FRUITS AND FRUIT TREES OF GREAT BRITAIN.

(Continued from page 65.)

No. XX.—BEURRÉ STERCKMANS PEAR.

SYNONYMES.—*Belle Alliance*; *Doyenné Esterkman*.

This is a worthy successor to Winter Nelis, and continues in use about a month after that variety. Although, strictly speaking it is not so richly flavoured as Winter Nelis, still it comes little short of it, and, in some seasons, as in the past, it has been most delicious, with the advantage of being a larger fruit.



Fruit inodorous; of medium size, generally two inches and three quarters wide, and about the same in height; handsome even in its outline, and of a perfect turbinate shape, being rounded at the eye, and tapering abruptly towards the stalk.

Skin smooth, at first of a bright grass-green colour on the shaded side, and dull red on the side next the sun; but as it ripens the green becomes citron yellow tinged with green, and the red a rather bright crimson. The whole is covered with russet dots and markings.

Eye open, with short, erect, rigid segments placed in a wide and rather shallow cavity, which is undulating; sometimes the segments are altogether wanting.

Stalk about three quarters of an inch long, pretty stout and woody, set in a narrow, close cavity, and perfectly perpendicular with the fruit.

Flesh white with a greenish tinge, very melting, buttery, and juicy. Juice abundant, rich, sugary, vinous, and with a fine aroma.

This is a first-rate dessert pear, ripe during January and February.

The tree is an abundant bearer, succeeds admirably on the quince stock, and forms a handsome pyramid.

This is generally supposed to have been a seedling of Van Mons; but that is a mistake. It was raised in Belgium by a person of the name of Sterckmans, and brought into notice by Dr. Van Mons.—II.

GARDENER'S ROYAL BENEVOLENT INSTITUTION.

THE ordinary Meetings of this Institution are now held in the rooms of the Horticultural Society, St. Martin's Place; and through the liberality of the Council of the Society of Arts, the annual Meetings will, in future, be held in the large room of the Society's House, John Street, Adelphi.

On the 8th of June next, the day of the Grand Flower Show at the Crystal Palace, the Sixteenth Anniversary Festival will be held in the Palace, after the Exhibition. On this occasion the chair will be occupied by Sir W. Haliburton, better known as Judge Haliburton, and the author of "Sam Slick."

It has been so arranged, that on this occasion the usual guinea dinner-ticket will also admit, without additional payment, the holder to the Flower Show. Ladies are also invited to join in the festival, for whom tickets are issued at *ten shillings* each. It is expected there will be a great gathering; and we trust that all who are interested in this noble Institution will come forward on this occasion, and, both by their presence and means, give it all the support in their power.

NOTES ON NEW OR RARE PLANTS.

RHYNCHOSPERMUM JASMINOIDES. Lindl. Nat. ord., *Apocynaceæ*. Native of China.—Habit climbing, not robust, but extending far. Branches round, and, when young, covered with thin, short, brown pubescence. Leaves opposite, on short petioles, ovate or elliptical, acute, smooth, shining, and somewhat coriaceous, dark green above and pale below. Inflorescence cymose bracteated. Peduncles and pedicels long and slender. Calyx composed of five acute, reflexed, green segments. Corolla white, tube short, narrow, and round for about half its length, and in the other half suddenly swelling out and becoming furrowed. Limb of the corolla composed of five spreading undulate, slightly obovate segments, with very much reflexed margins, giving a twisted appearance to each segment.

This really fine climber much resembles a Jasmine in its general appearance and perfume, which is very rich and delicate. It is a most profuse bloomer, and lasts in flower from early in April till late in June. This is when cultivated in a stove or intermediate house; but, in a greenhouse, where it thrives well, it is, of course, later in coming into flower. It is hardy enough to bear with impunity the winter of London out of doors, and grows strongly, but will not flower in such a position. Loam, peat, and sand, with a good predominance of the first, form a compost in which it delights; and it will do either in pots, and trained upon a trellis, or planted out in a bed, or pit, and tied to the rafters. It should have a good rest as soon after the growth is ripened as is convenient. Propagates freely from cuttings, and abounds in the milky juice so characteristic of many of the plants of the order to which it belongs.

EPACRIS PALUDOSA. R. Br. Nat. ord., *Epacridaceæ*. Native of New Holland.—Habit lax, but very graceful. Leaves subulate, rigid, mucronate, or acerose. Flowers confined to the extremities of the branches in a close and crowded manner. Calyx of five imbricated, membranous, pale-green segments, based by several closely-imbricated bracts of the same texture and colour. Tube of the corolla short, with a limb of five spreading, rounded, white lobes. Stamens five, included in the tube of the corolla, and alternating with its segments. Pistil one, a little longer than the stamens.

A very interesting and useful species of this highly-prized genus. Strikes freely from partially-ripened cuttings, and requires the same general treatment as is recommended for other Epacris. Blooms gaily in March and April, sometimes lasting into May.

TEMPLETONIA GLAUCA. Sims. Nat. ord., *Leguminosææ*. Native of New Holland.—Habit erect, and somewhat rigid. Branches, when young, triangular and furrowed. Leaves alternate, ligulate, shortly petioled, with a small mucro. Flowers

produced in the axils of the leaves at the extremities of the branches upon short-jointed peduncles. Calyx slightly campanulate, two lipped; the upper lip emarginate, and the lower divided into three blunt teeth, the centre one longest; green. Standard lanceolate, very much reflexed. Wings long, strap-shaped. Keel long, narrow, and slightly curved; all dull crimson. Stamens in one bundle, included in the keel.

A very handsome greenhouse plant, blooming in April and May. Good fibrous loam and sandy peat form the best compost for it. Cuttings root freely, and it ripens seeds in plenty for propagation; but cuttings make the best plants.

MELALEUCA SQUARROSA. Smith. Nat. ord., *Myrtaceæ*. Native of New Holland.—A shrub growing about six or seven feet high, branching freely and compactly. Branches quadrangular when young, and covered with short, brown hairs. Leaves opposite, sessile, squarrose, ovate acute, slightly undulated, coriaceous, and thickly set with transparent dots. Inflorescence in terminal spikes, bracteated. Lower bracts obovate and mucronate; upper ones ovate, all covered with glandular hairs. Flowers small, several in the axil of each bract; fragrant. Calyx of five short green teeth. Corolla consisting of five round concave membranous petals; white. Stamens numerous, thread-like creamy white. Pistil one, erect, stout.

A very handsome greenhouse plant, blooming in April and May. It requires a compost composed of good fibry loam, with a little peat, and plenty of sand. To the formation of handsome specimens ample stopping and tying out are necessary. Cuttings root freely treated in the usual way for greenhouse plants.—S. G. W.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 96.)

GRAPES.

TRENTHAM BLACK (*Muscat Noir d'Espagne*).—Bunches large, tapering, and shouldered. Berries above medium size, oval. Skin, though not thick, is tough and membranous, separating freely from the flesh, of a jet black colour, and covered with thin bloom. Flesh very melting, abundantly juicy, very rich, sugary, and vinous.

A very excellent grape, ripening with Black Hamburgh; but keeping plump long after the Black Hamburgh shrivels. The vine is a free grower and a good bearer; and Mr. Fleming informs me that it resists powerful sun better than any other variety he knows. It was introduced by Mr. Rivers under the name given as a synonyme; but, not being a Muscat, its present name was adopted.

Turner's Black. See *Esperione*.

Ugni Blanc. See *Trebbiano*.

Ulliac. See *Cellade*.

Uva di tri Volte. See *Ischia*.

Van der Laan Précoce. See *Scotch White Cluster*.

Variegated Chasselas. See *Aleppo*.

VERDELHO.—Bunches rather small, conical, and loose. Berries small, unequal in size, and oval. Skin thin and transparent, yellowish-green, but becoming a fine amber colour when highly ripened, with sometimes markings of russet. Flesh tender, sugary, and richly flavoured.

It is from this grape that the Madeira wine is principally made.

Vert Précoce de Madère. See *Early Green Madeira*.

Victoria. See *Black Hamburgh*.

Violet Frontignan. See *Purple Constantia*.

Violette Muskateller. See *Purple Constantia*.

Wantage. See *Lombardy*.

Warner's Hamburgh. See *Black Hamburgh*.

Waterzoet Noir. See *Black Sweetwater*.

Weisser Cibebe. See *Early White Malvasia*.

Weisser Muskateller. See *White Frontignan*.

Weisser Riessling. See *White Riessling*.

WEST'S ST. PETER'S (*Black Lombardy*; *Money's St. Peter's*; *Poonah*; *Raisin des Carmes*; *Raisin de Cuba*).

—Bunches large, tapering, and well shouldered. Berries large, roundish-oval, and varying in size. Skin thin, very black, covered with a blue bloom. Flesh tender, very juicy, sweet, and with a fine sprightly flavour.

This is a very fine late grape, and requires to be grown in a house with stove heat.

White Chasselas. See *Royal Muscadine*.

White Constantia. See *White Frontignan*.

WHITE CORINTH (*White Kishmish; Stoneless Round-berried; Corinthe Blanc*).—Bunches small, shouldered, and loose. Berries very small. Skin yellowish-white, changing to amber, covered with white bloom. Flesh very juicy, sub-acid and with a refreshing flavour. The seeds are entirely wanting. Of no value.

White Cucumber. See *Cornichon Blanc*.

WHITE FRONTIGNAN (*White Constantia; Nepean's Constantia; Muscat Blanc; Moscatel Commun; Raisin de Frontignan; Weisser Muskateller*).—Bunches large, long, cylindrical, and compact, without shoulders. Berries medium sized, round. Skin dull greenish-white, or yellow, covered with thin grey bloom. Flesh rather firm, juicy, sugary, and very rich, with a fine Muscat flavour.

This will ripen either in a cool or warm vinery, but is worthy of the most favourable situation in which it can be grown. The vine is an abundant bearer, and forces well.

White Hamburg. See *White Lisbon*.

White Kishmish. See *White Corinth*.

WHITE LISBON (*White Hamburg; White Portugal; White Raisin*).—Bunches large and loose. Berries oval. Skin greenish-white. Flesh firm and crackling, not very juicy, but with a sweet and refreshing flavour.

It is this grape which is so largely imported from Portugal during the autumn and winter months, and sold in the fruiterers' and grocers' shops under the name of Portugal Grapes.

White Melier. See *Early White Malvasia*.

White Muscadine. See *Royal Muscadine*.

WHITE NICE.—Bunches very large and loose, with several shoulders. Berries medium sized, round, and hanging loosely on the bunches. Skin thin, but tough, and membranous; greenish-white, becoming pale amber coloured as it ripens. Flesh firm and sweet. Bunches of this variety have been grown to weigh 18 lbs. The leaves are very downy underneath.

White Portugal. See *White Lisbon*.

White Raisin. See *White Lisbon*.

WHITE RISSLING (*Weisser Riessling*).—Bunches small, short, and compact, scarcely, if at all, shouldered. Berries round, or somewhat oblate. Skin thin, greenish-white, and, when highly ripened, sometimes with a reddish tinge. Flesh tender, fleshy, and juicy, with a sweet and agreeably aromatic flavour.

This may be grown either in a cool vinery, or against a wall in the open air. The vine is a great bearer, and is very extensively grown in the vineyards of the Rhine and Moselle.

WHITE ROMAIN (*Muscat Romain*).—Bunches below medium size, and rather closely set. Berries medium sized, oval. Skin thin, and so transparent that the seeds can be seen through it; yellowish white, and with a thin bloom. Flesh tender, very juicy, and sweet. An excellent early grape. The wood is very short-jointed, and the vine forms a small bush; it is well suited for pot culture.

Mr. Rivers introduced this variety, expecting it to be a Muscat; but when it fruited it was found not to be so, and he, therefore, adopted the present name.

WHITE SWEETWATER (*Stillward's Sweetwater; Dutch Sweetwater; Perle Blanche*).—Bunches rather above medium size, shouldered, and very loose, containing many badly-developed berries. Berries large and round. Skin thin and transparent, exhibiting the veins of the flesh;

white, and covered with a thin bloom, and when highly ripened streaked with traces of russet. Flesh tender, very juicy, sweet, and with a fine delicate flavour.

A well-known and excellent early grape, whose greatest fault is the irregularity with which its bunches are set. There is another Sweetwater, called, by the Dutch, *Water-zoet Witte*, which is a very inferior variety to this.

WHITE TOKAY.—Bunches rather large and compact, from nine inches to a foot long, and broad-shouldered. Berries large and oval. Skin thin, pale coloured, but assuming an amber colour at maturity. Flesh tender and juicy, with a rich flavour. This, in the size of the bunch and form and size of the berries, resembles Muscat of Alexandria; but the bunches are much more compact, and the fruit has not the slightest trace of the Muscat flavour.

Wilmot's Hamburg. See *Dutch Hamburg*.

Workshop Manor. See *Black Damascus*.

Zante. See *Black Corinth*.

LIST OF SELECT GRAPES.

For small establishments those marked * should be chosen.

I. FOR WALLS IN THE OPEN AIR.

<i>Muscats.</i>	<i>Not Muscats.</i>
*Early Black Muscat	*Early Malingre
Early Saumur Muscat	Early White Malvasia
July Muscat	*Esperione
*Muscat St. Laurent	*Miller's Burgundy
	Pitmaston White Cluster
	Purple Fontainebleau
	*Royal Muscadine

II. FOR COOL VINERIES.

<i>Muscats.</i>	<i>Not Muscats.</i>
Black Frontignan	*Black Champion
Chasselas Musqué	*Black Hamburg
*Early Black Muscat	Black Prince
Early Saumur Muscat	*Chasselas Vibert
July Muscat	Early White Malvasia
*Madeira Muscat	*Golden Hamburg
*Muscat St. Laurent	Pitmaston White Cluster
	*Royal Muscadine
	*White Romain

III. FOR POTS IN ORCHARD-HOUSES.

<i>Muscats.</i>	<i>Not Muscats.</i>
August Muscat	*Cambridge Botanic Garden
Early Saumur Muscat	*Chasselas Vibert
*July Muscat	*Esperione
*Muscat St. Laurent	Early White Malvasia
*Sarabelle Muscat	Prolific Sweetwater
	*Purple Fontainebleau
	*Royal Muscadine
	*White Romain

IV. FOR FORCING FOR EARLY CROPS.

<i>Muscats.</i>	<i>Not Muscats.</i>
*Chasselas Musqué	*Black Hamburg
Muscat Hamburg	Black Prince
Purple Constantia	*Early Chasselas
Red Frontignan	Golden Hamburg
*White Frontignan	*Royal Muscadine
	*Trentham Black
	White Sweetwater

V. FOR FORCING FOR LATE CROPS.

<i>Muscats.</i>	<i>Not Muscats.</i>
Bowood Muscat	Black Damascus
Canon Hall Muscat	Kempsey Alicante
*Muscat of Alexandria	*Lady Downe's Seedling
	*Trebiano
	*West's St. Peter's

(To be continued.)

NOTES ON APPLES AND PEARS.

WHERE is the nobleman, or country gentleman, who has on his premises a fruit-room, that would not almost glory to see it teeming with those fruits which are natives of our own

dear old isle (Britain), as well as those of many other parts of Europe—the Apple and the Pear—at this season of the year? These fruits are the most popular of all the cultivated fruits of our native islands; and deserve the more attention, because they are dainties which are not confined to the tables of the higher classes, for some of the choicest kinds of each sort are to be found in many a cottager's garden, especially around the neighbourhood of Bristol.

At the September Show of the Clifton Horticultural Society last year a proof of this was to be seen; for there the cottagers' Apples and Pears spoke for themselves much higher than it would be possible for volumes to speak for them—they being equal to any that I saw exhibited of summer fruits, where the competition lay between either gentlemen-amateurs, or their gardeners.

Considering all that has been said on the cultivation, and on behalf of these fruits, by all writers upon them from the earliest date to within the last few years, a great deal more has been said than practised; although some of the cultivators now seem to be trying to make up for lost time; but that is impossible, for, as the old adage has it, "Misspent time can ne'er be recalled." Even now there seems to be too great a leaning (by small growers) towards increasing the varieties they cultivate. Therefore, the exercise of judgment in their selection, in too many cases, is sadly neglected.

There seems to be far too great a number (they are become legions), described in catalogues. Small cultivators, and too many gardeners as well, resemble a child in a toy-shop—such a host of desirables are before them they become bewildered, scarcely knowing which to choose, and, too often, purchase those of which the merits have been scarcely tested, although extolled to the highest degree; and, consequently, when they come to be proved are found to be just admissible for the cider or perry-mill, but not so good for that purpose even as many of our well-known varieties.

It must be acknowledged by everyone, that unnumbered thanks are due to the British Pomological Society for the exertions they have this last year made, and which, without a doubt, are wide and rapid strides in the right direction, and will very soon place before the public a list of the choicest selections of all our hardy kinds of fruit, with a description of the situation that each of them is best adapted to. This will be a very great help to the whole country; a help that will be felt by all classes of society—the rich proprietor as well as the market-gardener, and the humble cottager.

There seems to be greater desire for cultivating these fruits than there was a few years ago, especially among those who are obliged to follow various other pursuits to supply their daily wants.

A proof of this makes itself more visible every day. In this small town there are three cottagers that are going a step further than the bulk of their neighbours; they subscribe their penny per week each of them, and take THE COTTAGE GARDENER between them. This is the right kind of spirit—one which will very soon spread itself farther; for the day is not very far distant when the working classes will as much think of doing without wholesome fruit every day, as they do now of doing without their accustomed meals.

I must now turn back for a retrospect of about fourteen years, when many people were surprised to see one private gentleman planting on such a gigantic scale, having some years previous to this planted several acres, and then to plant from twelve to fourteen acres more. But, just about this time, some malicious person cut off several hundreds of the trees, about one foot from the ground, which caused the owner to have all the others cut off and regrafted, with the intention of keeping them dwarf bushy trees. They went on well for about four years, then bore two fair crops for young trees; but, after that, up to last year, they would scarcely pay for gathering, for they had been allowed to grow together, so that it was impossible for anyone to walk about amongst them. The grafts were also permitted to grow on for years, up even into the branches, which were choking and killing the trees as fast as time would allow.

This was the state the trees were in when I first saw them: but from these self-same trees, and at this present time, there are above thirty different kinds of the choicest dessert fruits produced, and not a few of them, but several bushels of some of the kinds. Many persons had seen the trees; and, of course, everyone's opinion on them was different. Some were for destroying them altogether; but could they see the fruit now, I fancy their recommendations would be altered. The change seemed quite as sudden, in comparison, as the unexpected peels of thunder are

oftentimes of a summer's day; but not quite so sudden as that unwelcome visitor was which made his unexpected appearance on the last day of March, and the first day of April—that visitor which is known among children as "Jack Frost," but will be known to the majority of gardeners this year as a wholesale fruit destroyer, especially where he was not forbidden, or rather, kept at bay by protection.—J. ASHMAN.

(To be continued.)

NOTES UPON SEEDS AND SEEDLINGS.

SINCE observing that curious phenomenon connected with the seeds of *Collomia*, as narrated at page 350 of the last volume, I have examined the seeds of a great number of other plants, to ascertain if they also possessed the property of shooting out spiral threads the moment their outer skin, or testa, was moistened. I find many species allied to *Collomia* do so in a greater or less degree, varying considerably even in the various species of the same genus; and it is by no means a distinctive mark of the order (*Polemoniaceæ*); for, while it is present in *Collomia* and *Gilia*, I do not find it at all in any species of *Polemonium* or *Leptosiphon* which I have examined.

On the other hand, some few plants belonging to widely different orders show it fully as well as those above mentioned; for instance, *Salvia hornimum*, *S. Forskohlii*, and *S. argentea*; while in *S. gigantea* I could detect no trace of it. A few composite plants also possess this peculiarity. In *Casuarina* these spiral threads seem to belong to an inner coating rather than to the external skin of the seed. While examining them I was led to speculate upon the reason why they were so created different from all other seeds—for God never works without a purpose—and my speculations were assisted by a passage I met with in an American work (Gray's "Structural and Systematic Botany"). The author says, "They may subserve a useful purpose in fixing light seeds to the ground, where they lodge by means of the first shower they receive." How interesting it is to observe the care with which Providence ensures the perpetuation of the smallest of created things.

One of the strangest circumstances connected with seeds which has come under my notice is the length of time some very minute ones will lie in the soil without germinating. A few years ago I was very anxious to raise a stock of *Begonia Martiana* (or, as it is sometimes called, *B. diversifolia*), I sowed the seed of it, which is as fine almost as dust, in the autumn. During the winter and spring a few plants came up, which I immediately pricked off. They continued to germinate one or two at a time until August, when they came up by hundreds.

It is interesting to observe the change in form which the leaves of some plants undergo in their younger stages. The first pair of leaves which some plants make are of their normal form; but in others that state is only gradually attained. The most remarkable instance of this latter mode with which I am acquainted occurs in the *Victoria regia*. The first leaf is long, narrow, and grass-like; the second arrow-head-shaped and pointed; and it is only after the production of six or seven leaves that the normal round form is attained.

The young leaves of some seedlings of *Ouverandra fenestralis*, which I have raised, are exactly like those of *Aponogeton distachyon*, while its normal form is, as we all know, a mere skeleton, with nothing but the veins left; hence its name of the "lattice plant."

Almost all Palms, whether they have pinnate or fan-shaped leaves, produce entire ones at first from seed; the only exceptions to this rule, that I know of, are *Calamus Retang*, *Latania rubra*, and *L. aurea*.

Among Cycads there is a great variation in the mode of growth from seed; some start into existence almost in their normal form. I have seen seedlings of *Encephalartus Caffir* the very first leaf of which was furnished with ten or a dozen leaflets; while the first leaves of *Ceratozamia Ghiesbreghtii* and *C. Miqeliiana* are only bifoliate.

Stangeria paradoxa—that curious Cycad, which, from the great resemblance of its venation to that of a Fern, was at first published as a *Lomaria* by one of our best Fern botanists—at five years old from seed has a tuber-like stem not larger than a nut. How old, then, must those imported plants be which have stems a foot high and fifteen inches in circumference? Still greater must be the age and slower the growth of *Encephalartus Caffir* and its allies. I have had plants of this under my charge

with stems five feet high, which, although they produced a crown of more than one hundred and fifty leaves every year, seemed never to increase the dimensions of their stems. What a contrast do these plants make to the rate at which the Plantains grow! There is at present in the magnificent Palm-house of the Royal Botanic Gardens at Kew a plant of *Musa Ensete*, the growth of which is more remarkable than that of any other plant I know. Its stem is between five and six feet in circumference; its leaves have reached the roof; it is now just coming into flower; and yet it is not quite four years old from the seed. (See Vol. XX. p. 160.)—KARL.

TRADE CATALOGUE RECEIVED.

A List of Plants cultivated and sold by E. G. Henderson and Son, Wellington Road, St. John's Wood. Spring 1859.—Some time ago we noticed the autumn edition of this catalogue, which, in bulk, had more the appearance of a botanical work than a nursery list. We have now before us a goodly volume of 104 octavo pages; which embrace every imaginable subject which can be found in a plant catalogue, and many novelties of singular interest, of which we have descriptions for the first time.

VARIETIES.

BEE-KEEPING IN NORTHERN RUSSIA AND CENTRAL AFRICA.—M. Erman writing from Murom, on the banks of the Russian river Oka, says, under the date of August 3rd:—"The hollows near the Oka were covered with the richest grass, and decked with a great variety of meadow flowers. Starlings were collected here in multitudes, preparatory to their migration southwards. At the end of twenty versts this rich meadow land was succeeded by a Pine forest on a sandy soil. On the boughs of the Pines were hung wooden hives in which the wild bees deposited their stores of honey, to be carried off by the peasants in the neighbourhood. This was the first trace we saw of systematic attention to honey as an article of husbandry." Dr. Barth, in central Africa, states that a few miles beyond Ujé, in the district of Shamo, begins a region given up entirely to the growth of Ngaberé, that is, Durrah or *Sorghum vulgare*. This region, therefore, exactly resembles the plains of Sennar, where Durrah is, and, probably, has been for more than two thousand years almost the only grain cultivated, or rather we should say, grown; for the little care bestowed on the ground or crops does not deserve to be called cultivation. Man sows the seed and gathers the harvest; nature does all the rest. Here the beehives (hollow logs, we presume) are underground; in the hills round Kano they are suspended from the trees. The hives have to be placed underground to save the wax from the intense heat of the climate; but why in climates so dissimilar as Russia and Africa they are suspended from trees, unless to preserve them from predatory animals, is not so self-evident.

NOTES BY A GARDENING BOOKWORM.—"The Husbandman's Fruitful Orchard." Imprinted for Roger Jackson, and are to be sold at his shop in Fleet-street, near the conduit. 1609." Although thus designated on the title-page, this little volume is, throughout, headed "The Fruiterers' Secrets." Under this name, a small part of it was reprinted in the edition of W. Lawson's "New Garden and Orchard," in 1623. Who was the author is doubtful, "The Epistle to the Reader" is subscribed "N. F." He wrote as a practical man only can write. "Pruning" is used by this author, as it is by Spencer, for "pruning." "Every fruit country hath their severall names, although one kinde of fruit. As, John-Apples be, in some places, called Dewzings or Long-lasters, and Goodings be called Old Wives, &c." "Dewzings" evidently is a corruption of "Deux-ans," the name of an Apple, common at Hambledon, in Hampshire, where there are trees of it, that, probably, were existing when "N. F." wrote. "I thinke meete to acquaint thee from whence our great plentie of fruit in England came. One Richard Harris, of London, borne in Ireland, Fruiterer to King Henry the eight, fetched out of Fraunce great store of graftes, especially pippins: before which time there was no right pippins in England. He fetched also, out of the Lowe Countries, Cherrie grafts, and Peare grafts of divers sorts: then tooke a peece of ground belonging to the King, in the parish of Tenham in Kent, being about the quantitie of seaven score acres; whereof he made an orchard, planting therein all these foraigne grafts. Which Orchard is, and hath been from time to time, the chiefe mother of all other orchards for those kindes of fruites in Kent, and of divers other

places. And afore that these said grafts were fetched out of Fraunce and the Lowe Countries, although that there was some store of fruit in England, yet there wanted both rare fruites, and lasting fine fruites. The Dutch and French finding it to be so scarce, especially in these countries neere London, commonly plyed *Billings-gate*, and divers other places with such kinds of fruites. But now (thanks bee to God) divers gentlemen and others, taking delight in grafting (being a matter so necessary and beneficial in a Comon-wealth) have planted many Orchards, fetching their grafts out of that Orchard, which Harris planted called the *New-garden*. And by reason of the great increase that now is growing in divers parts of this land, of such fine and servicable fruit, there is no need of any foraigne fruites, but we are able to serve other places." Tenham, or Teynham, is between four and five miles from Sittingbourne, in Kent. Fuller claims for Leonard Mascall the honour of introducing Pippins at a still earlier period. He was a gentleman of Sussex, and it is not improbable that he may have brought them into his garden at Plumstead; but Harris evidently introduced them for sale, and his "seaven score acres" formed the first fruit nursery in England. "The fruiterers of London doe first gather cherries into *kibseis*, or little open baskets." Is this name in use still? Baily, in his Dictionary—says, "Kibsey, a kind of wicker basket." "*Brut*," a fruit-bearing shoot.

ACRE.—The word is identical with Lat. *ager*, Gr. *agros*, "a field;" the Ger. *acker* means both "a field" and a "measure of land." Most nations have some measure nearly corresponding; originally, perhaps, the quantity which one plough could plough in a day; uniformity, therefore, is not to be looked for. The English statute acre consists of 4840 square yards. The chain with which land is measured is 22 yards long, and a square chain will contain 22 × 22, or 484 yards; so that 10 square chains make an acre. The acre is divided into 4 roods, a rood into 40 perches, and a perch contains 30½ square yards. The Scotch acre is larger than the English, and the Irish than the Scotch. 121 Irish acres = 196 English, nearly; 48 Scotch acres = 61 English. The following table shows the values of the more important corresponding measures compared with the English acre:—

English acre.....	1.00	Prussia { Little Morgen	0.63
Scotch acre	1.27	{ Great Morgen	1.40
Irish acre	1.62	Russia, Deciatina	2.70
Austria, Joch	1.42	Sardinia, Giornate	0.93
Baden, Morgen or Acre	0.89	Saxony, Morgen.....	1.36
Belgium, Hectare (French) ...	2.47	Spain, Fanegada.....	1.06
Denmark, Toende	5.05	Sweden, Tunneland	1.13
France { Hectare (= 100 ares) ..	2.47	Switzerland, Faux.....	1.62
{ Arpent (common)	0.99	" Geneva, Arpent... 1.27	
Hamburg, Morgen.....	2.38	Tuscany, Saccata	1.22
Hanover, Morgen	0.61	United States, English acre.....	1.00
Holland, Morgen	2.10	Württemberg, Morgen	2.40
Naples, Moggia	0.83	Roman Jugerum (ancient)	0.66
Poland, Morgen	1.38	Greek Plethron (ancient)	0.23
Portugal, Geira	1.43		

—(Chambers's Encyclopædia.)

TO CORRESPONDENTS.

SHANKED GRAPES (*S. W. Wiltshire*).—They are very badly shanked; caused, we have no doubt, by the roots being outside the forcing-house, and aggravated by the soil of the border being "like strong clay." We should at once clear away the soil carefully down to the roots, cover them with about nine inches of light fibry loam mixed with lime rubbish, and over that put two feet of fermenting dung, to rouse the roots to an action reciprocal to that of the branches. Thin out all the shanked parts of the bunches. The name of your plant is *Manettia glabra*, also called *Manettia cordifolia*.

DISEASED GRAPES (*F. J. E. R.*).—Never before have we seen Grapes diseased in this way. Although the seeds were formed, and of half their full size, there was no pulp in the berries; and these, no bigger than a very small Pea, were merely a skin, dry, brown, and cracked all over, like rust in an aggravated form; and looking something like a ripe Ivy-berry. Yet our correspondent says, "The Vines look most healthy in foliage, the bunches of Grapes are extremely large, and the roots well protected." The same gardener and the same treatment have been followed for years; but never did this disease appear before. We think it is caused by a fungus, but should like to have more information. Did the brownness appear when the berries were small, before the seed began forming? Are only a few berries in each bunch affected? Has the mildew ever attacked the Vines?

TRENTHAM GARDENS (*H. H.*).—We are sure that if you write to Mr. Henderson, the head gardener, he will most readily admit you, a young gardener, to see the gardens.

SULPHATE OF AMMONIA (*J. R.*).—We cannot say that we consider a solution of this "equal to stable drainage," but we can say that it is a very powerful manure. If you apply at 162, Fleet Street, you will be able to obtain guano, sulphate of ammonia, and other portable manures, in 7-lb. tins, all warranted unadulterated, and at the market price.

EARTHENWARE LABELS—CAMELLIAS IN SUMMER (*John Green*).—We have had little experience with earthenware labels; but found there was considerable trouble to make them look new, first by painting them, and then marking with black paint. Pieces of zinc make capital tallics, and

may be easily written upon with a quill. The best ink was lately mentioned. Some of the best Camellias we have seen are under glass the whole year, with abundance of air in summer, especially after the spring growth is over. If it is necessary to take them out, they should stand in a place somewhat shaded at first; and they will be all the better for what rains fall on them, if not so heavy as to saturate and soak the soil too much. Wherever placed, the plants must not be allowed to get dry. Towards the middle and end of autumn they will enjoy all the sunshine possible; but it will be necessary, if the plants are out of doors, to avoid letting them get soaked with cold rains, or the soil in the pots getting too cooled in cold nights. The taking-out and keeping-in are chiefly questions of convenience and necessity. The plants will do well either way.

HEATHS (A Regular Subscriber).—Those in bloom should have the flowers removed when their beauty is over, be cleaned and slightly pruned, and kept rather close in a cold pit until fresh growth is proceeding, and then inured gradually to abundance of air and light—keeping the pots, however, shaded from the sun. Those growing so freely may yet bloom. We cannot say, as we do not know the kinds; and the different sections of Heaths do not require similar treatment at the same time. You cannot err, however, in giving these all the air and light possible now; and in very small pots, perhaps they may need more pot room. If these are housed in good time in autumn, never allowed to be either soaked with water, or too dry in winter, and are kept during that period free from frost, but in a sweet airy atmosphere, they are likely to bloom freely the next season.

BEGONIA REX (Idem).—Except for a couple of months or so in the heat of the summer, you cannot manage *Begonia rex*, Gloxinias, and Achimenes in the greenhouse. For the two first, even then, the house must be kept closer and moister than would suit greenhouse plants in general. We expect you will lose your *Begonia* altogether next winter. Your heat has been deficient. When the plants have plenty of heat, they must be kept rather moist when growing.

GRUBS DESTROYING STRAWBERRIES (F. G. D.).—The grubs you have sent as destroying your Strawberry plants by gnawing the roots through and through, are the full-grown larvae of a common beetle belonging to the Weevil family, *Otiorynchus sulcatus*. They are sufficiently large and conspicuous to be easily seen; and we would recommend that the soil round the crown of the plants should be carefully removed an inch or two deep, and search made for the larvae. Gas-tar water may also be applied round the roots with probable advantage. If row neglected, these grubs will soon enter the pupa state, and the beetles will be developed in a few weeks, and should be also sought for after dusk upon the plants.—W.

SEEDLINGS OF IPOMEAS AND OF PHARBITIS LIMBATA (A Subscriber).—It was lately mentioned that many seedlings are apt to give way if left long in the seed-pans. Convolvulus are not very subject to this; but in general they do best either when potted off, or two or three seeds put in a small pot, and then shifted to a larger pot as they grow, without much breaking the ball. With your heat from 55° to 60°, and sometimes hotter, we cannot account for the failure, except that the drainage was defective, or too much water given in the dull weather we lately had. When grown in light, rich soil, and watered when they require it, much as we would water a young *Geranium*, we never noticed them go off as you mention; but we have seen them do so when put in large pots at first, grown in old stiff soil, and kept with more moisture about them than their small leaves could throw off by perspiration. Had your plants been in a cold pit, we should have assigned cold as one of the causes. So long as the plants are small, when the sun is very bright it would be advisable to shade and sprinkle the tops with a little water instead of saturating the roots. The soil must be moist, not saturated.

TROPEOLUM CANARIENSE (Idem).—The mode of growing this climber is purely a matter of taste. We have stuck in rough branches, and let them hang and trail among them. We have made regular and large arches, and let them cover them. Have placed the snagged top of trees, and let them festoon and cut about just as they liked. In general, the less trim they are the better they look. They will soon cover a rustic summer-house, by August or September; but for the most of the year, the place would be bare. Anything that will support them and furnish you with head-room, will do for the job,—such as a number of stout sticks, which may meet together in a pointed form in the centre, or be bent in an arch-like shape.

LARGE HANGING BASKETS (Idem).—*Lophospermums* and *Cobaeas* would be the most suitable for a middle-sized basket—say, two feet in diameter. Such plants as *Maurandias* would answer well. For baskets—say, about a foot in diameter, such plants as the white Ivy-leaved *Geranium*, and the old *Lobelia speciosa* or *begonifolia*, would answer well. The basket should have a dish inside for the plants to grow in. The outside covering may be wire, earthenware, or wood—such as hazel rods, or rough oak branches.

DESTROYING WOODLICE, &c. (J. R.).—Stick bell-glasses, so that the rims are level with the earth on your beds; put a little water in the bottom, and a bit of leaf of fresh sweet Lettuce, crisp Carrot, &c. When the woodlice go in to feed, they cannot get up the smooth glass. Make the sides of the earth in the pit smooth and moist with a trowel and water, water the bed, and then put a thin layer of dry hay round the sides of the bed. Have a pail of boiling water in the morning, and a small pot with a rose, and as you gently uncover the hay, pour the boiling water on the insects that will be congregated beneath it. For snails, water with lime water, and entice with tender Cabbage or Lettuce leaves, with a little butter, or fat, rubbed on here and there, and when feeding quietly at bedtime, take leaves and snails out, and after clearing the leaves, replace again. A few brewer's grains are also great enticers to these gentry. For green fly, &c., use tobacco smoke.

FIGS IN POTS (A Scotch Constant Subscriber).—So far as our experience goes, there are three things essential to success. First. Loam rather adhesive than otherwise. Secondly. Whatever the size of the pots, to have them well filled with roots before the Figs begin to show much; and, thirdly, though when at rest the pots may be kept moderately dry, from the moment that growth commences the roots must never know what it is to want water. Have the fruit half swelled, and allow the roots to become dry for a day or two; and in a short time the fruit will become yellow and drop. Pans below the pots will help to keep the moisture more regular; but the water must not stand in the pans for any length of time above a quarter of an inch deep. A box with a couple of inches of moss in it would be better, as the moss would long maintain its moisture, and there would be no danger of the plant standing too long in water so as to be

treated as an aquatic. If the plants are started early, it would be as well to nip out the terminal bud of the shoot when an inch long, as this would cause the fruit-buds along the shoots to show more regularly. This stopping will cause several shoots to come instead of one, and one or more of these should be selected for the second crop; and so on again for next year's bearing wood. To prevent dropping, and cause the fruit to swell quicker, we have also removed a small ring of bark, near the base of the shoot, below the fruit—say, from one-sixteenth to one-eighth of an inch, and the wound would be healed over about the time the fruit ripened. The best cure for mildew when it has come, is damping the places and dredging them with flowers of sulphur. The best preventive is good culture, and securing something like reciprocal action between roots and tops. Have the atmosphere of the house hot and dry, and the roots cold and with more moisture about them than they can absorb for want of due stimulus, and mildew will be apt to appear. Reverse the process, have the border dry and warm, and the house moist and warm, and the same thing will take place. Keep a nice growing atmosphere about the plants, and water the roots, to meet the demands of perspiration, &c., by suitable moisture, &c., and mildew will rarely show itself. Since we have kept soil and air in unison, we have scarcely seen a symptom of the annoyance.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

MAY 25th and 26th. BEVERLEY. *Sec.*, Francis Calvert, Surgeon, &c. Entries close May 10th.
JUNE 1st, 2nd, and 3rd, 1859. BATH AND WEST OF ENGLAND. At Barnstaple, Devon. *Director*, S. Pittman, Esq., Rumwell Lodge, Taunton. Entries close May 1st.
JUNE 6th, 7th, and 8th, 1859. GLASGOW. *Sec.*, Robert M'Cowan, 17, Gordon Street, Glasgow.
JUNE 16th. ESSEX. *Sec.*, Robert Emson, Halstead, Essex. Entries close June 1st.
JULY 1st, 2nd, 4th, and 5th. SHEFFIELD. *Sec.*, Wm. H. Dawson, Sheffield. Entries close the 15th of June.
JULY 21st. PRESCOT. *Sec.*, Mr. James Beesley, Prescott.
AUGUST 27th. HALIFAX. *Sec.*, William Irvine, Holmfild, Ovenden, near Halifax.
SEPTEMBER 22nd. BRIDGNORTH. *Sec.*, Richard Taylor, Bridgnorth.
OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. *Sec.*, Geo. Griffiths, 7, St. Swithin Street, Worcester.
N.B.—*Secretaries will oblige us by sending early copies of their lists.*

INFLUENCE OF SOIL OVER CHICKENS.

WE believe that cattle which once were kept only on certain soils are now successfully installed everywhere; because, their requirements being known, artificial means are used to supply admitted natural deficiencies, and some such knowledge may be advantageously used among poultry.

Certain breeds, as Cochins and Brahmas, will live in spite of hard fare and easterly winds; while others, as Dorkings and Spanish, require help. We will, therefore, give the result of some experiments we have tried.

Cochins and Spanish were hatched on the same day in January, and fed alike. We knew the same treatment seldom succeeded with both; but would give it a fair trial. The Cochins nearly all lived; the Spanish died. At another place, Brahmas and Dorkings were hatched—the Brahmas lived; the Dorkings died. All these had to rough it, and had no indulgence.

In February we hatched again. Then we gave extra care to the Spanish and Dorkings; they did as well, and grow as heartily as the Cochins and Brahmas.

In all these sittings the chickens came out strong. They gradually fell off day by day. The first began to die at the end of a week, and in three weeks none were left.

In the February broods that succeeded, the chickens, besides their usual feeding, had bread and ale three times per day. With this assistance they never flag; but remain hearty, and busy seeking their food all day.

Our experience is, that on certain soils chickens want stimulants for the first two or three weeks. It is during this time the seeds of disease and weakness are sown that afterwards result in death and disappointment. We cannot speak as to the soil that suits certain breeds; but we rear Dorkings most successfully on a stiff clay.

We are sure if our readers will adopt our plan, and provide their chickens with bread and beer for the first three weeks of their lives, we shall hear fewer complaints of their dying, and shall not be asked so often what is to be done to keep them in health.

SKIPTON POULTRY SHOW.

THIS Show was held on May 11th and 12th, and at it the following prizes were awarded:—

GAME (Black-breasted, and other Reds and Blues).—Silver Cup, Capt. W. W. Hornby, Knowsley. Second, A. Sutherland, Burnley. Highly

Commended, J. Scott, Skipton. Commended, R. Auderson, Gargrave. Twenty-eight entries.

GAME (Duckwing, Greys, and Furnaces).—Silver Cup, Bird and Beldon, Bradford. Second, R. Dickinson, Burnley. Highly Commended, A. Sutherland, Burnley. Commended, G. W. Moss, Aigburth, Liverpool. Ten entries.

GAME (any other variety).—Silver Cup, Bird and Beldon, Bradford. Second, T. Dodds, Ovenden, Halifax. Highly Commended, W. D. Hastwell, 6, London Road, Carlisle; J. Price, Londonderry, Bedale. Eight entries.

SPANISH.—Silver Cup, Capt. W. W. Hornby, Knowsley. Second, J. Dixon, Bradford. Highly Commended, G. Morgan, 12, Esk Terrace, Whitby. Commended, J. Price, Londonderry, Bedale. Ten entries.

DORKINGS.—Silver Cup, Rev. G. Hustler, Appleton, Tadcaster. Second, Mrs. Lister, Beamsley Hall. Highly Commended, H. W. B. Berwick, Hemsley, York. Commended, S. Burn, East Terrace, Whitby. Ten entries.

COCHIN-CHINA.—Silver Cup, H. Tomlinson, Balsall Heath, Birmingham. Second, W. Copple, Preston. Highly Commended, H. Alecock, jun., Aircville, Skipton. Twelve entries.

HAMBURGH (Golden-pencilled).—Silver Cup, Bird and Beldon, Bradford. Second, W. C. Worrall, Rice House, near Liverpool. Highly Commended, J. Martin, Mildenham Mill, Claines, Worcester. Commended, M. Greenwood, Burnley. Sixteen entries.

HAMBURGH (Silver-pencilled).—Silver Cup, W. Maude, Victoria Place, Bingley. Second, J. Dixon, Bradford. Highly Commended, W. Ayrton, Earby. Commended, T. Keable, Rowdefield, Devizes. Twelve entries.

HAMBURGH (Golden-spangled).—Silver Cup, W. R. Lane, Bristol Road, Birmingham. Second, S. H. Hyde, Moss Cottage, Ashton-under-Lyne. Highly Commended, J. Dixon, Bradford; W. C. Worrall, Rice House, near Liverpool. Commended, Haigh and Hartley, Holmfirth. Eleven entries.

HAMBURGH (Silver-spangled).—Silver Cup, Mrs. H. Sharp, Bradford. Second, P. Lee, Skipton. Highly Commended, J. Dixon, Bradford; W. Dixon, Steeton. Commended, J. Dixon, Bradford. Thirteen entries.

HAMBURGH (Black).—Silver Cup and Second, J. Scott, Skipton. Highly Commended, J. Robinson, Vale House, Garstang. Three entries.

POLAND (Golden).—Silver Cup, Bird and Beldon, Bradford. Second, J. Dixon, Bradford. Highly Commended, D. Wilson, Sutton. Four entries.

POLAND (Silver).—Silver Cup and Second, J. Dixon, Bradford. Highly Commended, Bird and Beldon, Bradford. Three entries.

BANTAMS (Gold and Silver-laced).—First, J. N. Coulthurst, Gargrave. Second, J. Dixon, Bradford. Highly Commended, Capt. Hornby, R.N., Knowsley. Five entries.

BANTAMS (any other variety).—First, H. C. Worrall, West Derby, near Liverpool. Second, F. Hardy, Bowling Lane, Bradford. Highly Commended, J. N. Coulthurst, Gargrave. Commended, J. Dixon, Bradford. Twelve entries.

ANY VARIETY NOT PREVIOUSLY CLASSED.—Silver Cup and Second, J. Dixon, Bradford. Highly Commended, J. Smith, West Lane, Keighley. Commended, J. G. Sugden, Eastwood House, Keighley. Ten entries.

DUCKS (Aylesbury).—First, T. Procter, Settle. Second, M. Greenwood, Burnley. Seven entries.

DUCKS (Rouen).—First, G. Crowther, Moor Allerton, Leeds. Second, J. G. Sugden, Keighley. Seven entries.

DUCKS (any other variety).—First and Second, J. Dixon, Bradford. Highly Commended, J. Palmer, Thorby. Commended, S. Burn, East Terrace, Whitby. Four entries.

PIGEONS.—*Tumblers*.—First, H. Child, jun., Sherbourne Road, Birmingham. Second, H. J. Grimshaw, Pendle Forest, Burnley. Five entries.

Carriers.—First, G. Morgan, Broughton, Manchester. Second, H. Child, jun., Sherbourne Road, Birmingham. Highly Commended, G. Morgan, Broughton, Manchester; R. Tate, Driffield. Six entries.

Pouters.—First, H. Child, jun., Sherbourne Road, Birmingham. Second, Bird and Beldon, Bradford. Highly Commended, J. Fawcett, Burley. Six entries.

Runts.—First, M. Greenwood, Burnley. Second, H. Child, jun., Sherbourne Road, Birmingham. Two entries.

Jacobins.—First, J. Fawcett, Burley. Second, J. N. Coulthurst, Gargrave. Four entries.

Fantails.—First, S. Robson, Poeklington. Second, Mrs. R. Tate, Driffield. Three entries.

Owls.—First, G. Morgan, Broughton, Manchester. Second, M. Greenwood, Burnley. Five entries.

Trumpeters.—First, F. Mewburn, jun., Darlington. Second, J. E. Mapplebeck, Mosley Road, Birmingham. Four entries.

Barbs.—First, H. Child, jun., Sherbourne Road, Birmingham. Second, H. Smith, Skipton. Four entries.

Turbits.—First and Second, Bird and Beldon, Bradford. Commended, M. Greenwood, Burnley; Mrs. R. Tate, Driffield. Four entries.

Nuns.—First, F. Mewburn, jun., Darlington. Second, T. Hird, Skipton. Six entries.

Dragoons.—First, W. Ayrton, Earby. Second, H. Child, jun., Sherbourne Road, Birmingham. Two entries.

SINGLE GAME COCKS.—Silver Cup, Capt. W. W. Hornby, R.N., Knowsley. Highly Commended, H. C. Worrall, West Derby, near Liverpool; J. Cowgill, Thornton; Mrs. Lister, Manningham, Bradford; W. H. Dyson, High Street, Horton, Bradford. Twenty-two entries.

TWIN PIGEONS.

LAST month I lost a hen Pigeon while sitting. She was blown away on the 8th of April in a strong south-west wind, accompanied with mist, when I unadvisedly turned out a small flight of seven of my feeders, that I thought sufficiently strong on the wing to fly against the wind, and of no great value, if lost. They were all blown away in the driving mist, and only four returned.

I had, at the same time, a pair of Dragoons sitting, and also a pair of the common blue London flying birds. These latter are a mixture, being, apparently, a cross between the Skinnums and the Liège homing birds, sometimes called Short-faced Antwerps.

The eggs of the lost hen were sat upon by her mate for two days, he only coming off to feed himself and his young ones, as is

usually the case; and thinking those eggs would produce no better feeders than the blue flying Pigeons, I placed them under these last, and removed one of their own eggs to the Dragoons. It is to this egg, so removed, I am about to refer. The Dragoons sat a few days before the Blues, and their eggs, consequently, hatched first; and three or four days after hatching they neglected this added egg, and it became chilled. I removed it, and having cracked it to ascertain if the chick inside was dead, handed it to my little boy to throw away; he, childlike, must needs make a more minute inspection of its contents, and in it discovered two young ones, to which he called my attention. On examination I found this egg to contain two distinct and perfectly-formed young Pigeons within a day of hatching; they were, however, connected by the skin, or covering, of the yolk, which was not quite absorbed.

I have heard of twin chickens, and one case of twin Ducks, but this is the first case of twin Pigeons that has ever come to my knowledge; and thinking it a curious circumstance, I thought it might interest some of the readers of THE COTTAGE GARDENER.

By referring to my Pigeon register, I find this hen had been without a mate from the 31st of January to the 13th of March. She was very fat, and laid soft eggs on the 22nd and 24th; the egg in question being laid either on the 7th or 9th of April. There was nothing particular in its size or shape. I opened it on the 1st of May.—B. P. BRENT.

BEES COLLECTING POLLEN WITHOUT HONEY.

THE reader may have observed, at page 37, some extracts from Grunlach's "Natural History of Bees," given by "A DEVONSHIRE BEE-KEEPER," in opposition to what I said on bees obtaining the materials from plants to secrete wax. If this is wrong, it is no new theory of mine, as "H. W. NEWMAN" calls it, at page 44. I stated so in a back number, and observed that Mr. Taylor called my attention to it; and it would be superfluous, at present, to enter again on the subject. That correspondent, as also "B. and W.," seems to coincide with "A DEVONSHIRE BEE-KEEPER," as regards reliance upon Grunlach, whom they call an "eminent German Apianian." The following, however, does not justify such reliance. "Bees often starve in April, when their stock of honey is consumed, and when they can obtain in the fields abundance of pollen, but no honey." A mere novice in botany, or bee-keeping, knows, that when flowers produce pollen, they also, of course, contain honey. In fact the thing is too absurd to comment upon. However, if that German writer is one of "B. & W.'s" "lights of nature," he should guard against his errors as well as mine. Perhaps he will give proofs of my errors instead of confining himself to blank statements, and explain where I am less ready, with scientific terms, than other writers on bees.—J. WIGHTON.

OUR LETTER BOX.

FOOD FOR YOUNG PARTRIDGES (K. R. G.).—Young Partridges should be fed on chopped egg, bruised wheat, bread-crumbs, and eurd. They must always have water. If the hen with the young is put near a grass or clover field, they will run therein, and find much of their food; but this is only a help. The hen should not be allowed to leave the rip, and it should be secured from vermin at night. Cats are great destroyers of young Partridges. Our "Pigeon Manual" will be published in a few weeks.

WHITE FEATHERS IN WING OF THE RED-BREADED GAME COCK (J. B., Seaham).—If the white feathers are seen in the wing of the game cock they will disqualify him. A black-breasted red Game Cock should not show a white feather.

DEFECTS IN A GAME COCK (R. Corbett).—In close competition, the defect in the breast would be fatal to the success of the bird in question. The patch on the leg is also a disadvantage; and if the entries of good birds are likely to be numerous, we do not advise you to send him.

DISEASED PIGEONS (A Constant Reader).—The Carrier cock we fear is in a hopeless state. We cannot say anything better for the hens. They should be separated from the others, as the disease is contagious. It is supposed to be caused by damp; and if you attempt cure, the only course is warm, stimulating food, as hempseed, peppercorns, and such like.

CHICKENS DYING PREMATURELY (X. X. X.).—The feeding of your chickens must be wrong. The hanging crop is from excessive drinking, and that is caused by inward fever. Paradoxical as it may seem, the full and the empty crops proceed from the same cause. The best plan will be to tell you how you should feed:—chopped egg, oatmeal made into dry paste with milk, and given almost in particles, tailing wheat, eurd, and bread soaked in milk. If, while they are young, they can have skim-milk to drink, so much the better. Rice, Indian meal, and potatoes will cause the appearances you complain of. They should be fed very often, and a little at a time. The easterly winds also put them out of order, and they must be sheltered from them. The most important thing is to give them bread soaked in beer two or three times per day during the first fortnight. It strengthens them, and causes them to roam in search of the natural food that is so essential to their well-doing.

WEEKLY CALENDAR.

Day of M th	Day of Week.	MAY 31—JUNE 6, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon R. and S.	Moon's Age.	Clock after Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
31	Tu	Phytica plumosa.	30.042—29.990	85—52	S.	—	52 af 3	3 af 8	37 m 2	29		151
1	W	Gnidia radiata.	30.040—30.000	87—47	N.W.	—	51 3	4 8	sets	☉		152
2	Th	ASCENSION. HOLY THURSDAY.	30.051—29.929	86—55	S.E.	—	50 3	5 8	13 a 10	1		153
3	F	Erythrina cristagalli.	29.920—29.861	87—50	E.	—	49 3	6 8	56 10	2		154
4	S	Erica amplexacea.	30.106—30.082	80—47	S.	—	49 3	7 8	27 11	3		155
5	SUN	SUNDAY AFTER ASCENSION.	29.997—29.913	74—50	N.E.	.60	48 3	8 8	48 11	4		156
6	M	Pimelea graciliflora.	30.127—30.080	75—47	N.E.	.80	47 3	9 8	morn.	5		157

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 69.1° and 46.1°, respectively. The greatest heat, 86°, occurred on the 5th, in 1857; and the lowest cold, 32°, on the 31st, in 1857. During the period 122 days were fine, and on 92 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

AZALEA INDICA.—Encourage free growth, as soon as possible after they have done blooming, by placing them in heat, supplying an abundance of water, and syringing freely.

CALCEOLARIAS.—Water carefully; cut down when out of bloom, and remove them to a cold frame.

HEATHS AND NEW HOLLAND PLANTS.—The young stock will now succeed best in a pit, or frame, placing the lights to the north. The glass to be well washed, and the pots to be placed on tiles, or ashes, above the ground level.

PELARGONIUMS.—Give air freely, avoid cold draughts, and shade from scorching sun. Shift and stop the succession stock for late flowering.

PETUNIAS.—Do not neglect to pot off from the store propagating pots some of those, as advised last week, as also Scarlet Geraniums, Verbenas, Heliotropes, &c., to afford a variety of sorts and colours for the conservatory.

STOVE AND ORCHID-HOUSE.

Let rambling shoots of ordinary stove plants have frequent stopping. The *Aërides*, *Dendrobiums*, *Phalænopses*, *Saccolabiums*, *Sarcanthuses*, *Sobralias*, *Vandas*, and others of the eastern genera of Orchids, will now require most liberal and frequent waterings and syringings. *Gongoras*, *Peristerias*, *Stanhopeas*, &c., when full of roots in baskets, require a thorough soaking. Now is a good time to pot *Cymbidiums*, *Peristerias*, &c., starting into growth. *Aërides*, *Vandas*, and plants of a similar habit, do best when shifted after they have done blooming.

ACHIMENES.—Continue to shift them, as also *Begonias*, *Clerodendrons*, *Gesneras*, &c., as requisite. Remove those in bloom to the greenhouse or conservatory.

CLIMBERS.—Keep them thin and tied in, so as not to shade the rest of the plants to an injurious extent.

SUCCULENTS.—Shift *Meloeaeti*, &c., and keep them growing, and near the glass.

FORCING-HOUSES.

CHERRIES.—The trees in large pots or tubs, from which the crop has been lately gathered, should have abundance of air, and an occasional supply of liquid manure. Give them, also, a good washing overhead with the syringe, or engine, dashing it on with considerable force. They will also require to have their wood matured early.

FIGS.—Continue the practice of stopping when the shoots are four or five eyes long. Give a liberal supply of water, and thin out the second crop where too thick.

MELONS.—Keep the shoots thin, and remove all useless laterals. When the fruit is swelling, the soil should be kept in a properly moist state, and the foliage in a healthy condition. The bottom heat should not be allowed to sink below 75°.

PEACHES.—Keep up a growing temperature with plenty of air and moisture, and frequently syringe the trees, to

keep them clean and healthy. The ripening fruit will require plenty of air.

PINES.—Repot as they may require; for if they are allowed to remain in a pot-bound state at this season they are very apt to start prematurely into fruit. It is also particularly requisite that the balls are thoroughly moist at the time of repotting. To give strength to the growing stock, it is advisable to admit abundance of air in the morning part of the day; and in the afternoon, to encourage a high degree of heat with an abundance of atmospheric moisture. The plants growing in open beds to be supplied with a steady bottom heat of from 80° to 85°, and sufficient water to the roots.

VINES.—Proceed diligently with thinning the berries, as they swell rapidly at this season. The late houses in which the Vines are in bloom to be kept warmer and closer than they have been, until the fruit is set. Stop the shoots and laterals, and never allow a mass of useless wood to remain on them.

WILLIAM KEANE.

NOSEGAY GERANIUMS — SPERGULA PILIFERA.

WHAT a strange coincidence that the mother of all the *Nosegays* should have rested from her labours for the space of one hundred and eighty years, till the very season when an alpine weed, from the summit of a rock in a small island in the Mediterranean, was announced to supersede grass on the lawn! No less so, however, than that the same firm should have brought both events about, without being aware of the fact as far as it related to *Nosegays*.

The new *Imperial Crimson Geranium* is as old as the *Golden Chain*; but it was lost for a hundred and some odd years, so that the "oldest inhabitant" could never have seen it. The *Golden Chain* was all but gone after it this time twenty years back, when I first took to bedding Geraniums.

When these Geraniums were first introduced from the Cape they were not cut back yearly, as we do them now; each kind was allowed to grow as tall as its nature allowed it; and the difference between kind and kind was often only that of mere height; as one may see in any early edition of Miller's "Dictionary." It was in 1842 that I first discovered the *Golden Chain* to have been a sport from the first plain-leaved scarlet from the Cape, "the *Cape Scarlet*," of gardeners, and *Inquinans* of books.

I knew the original *Cape Scarlet*, and the first batch of pure seedlings—that is, not crossed from the *Golden Chain*, produced some of the original as nearly as is ever possible to have them from seed under high cultivation. That opened my eyes; and I began immediately to look out for other early sports of Geraniums which are mentioned by Miller, who says of the first *Horseshoe* kind, "These have a purple circle, or mark, like a horseshoe, through the leaf, going from one side of the base to the other, corresponding with the border of the leaf. The flowers are produced in pretty close bunches, standing

upon *long footstalks* towards the ends of the branches. They are of a *reddish purple* colour, and continue in succession great part of the summer. There are three or four varieties of this—one with *fine variegated leaves*; one with *crimson*; and another with *pink-coloured flowers*, which have been accidentally raised from seeds." I put in the italics to draw your attention more particularly to the *long footstalks*, to the *reddish* and *purple* colour, to the *crimson* and *pink*, and to the fine variegated seedlings, every one of which is identical with the style and colours of the *Nosegays*. Therefore, Sweet must have been in error when he published the first *Nosegay*, and said it was a native of the Cape.

All that related to the original wild Geraniums, in our books, was at my fingers' ends years and years before I thought of them as bedding plants; and having divined the origin of the *Golden Chain* from its own seedlings, I was all but mad about the crimson kind mentioned in Miller's "Dictionary." I never ceased asking about it of every good gardener who called at Shrubland from 1842 till 1850, or 1851 rather. Amongst those whom I thus questioned were Mr. Ingram, gardener to Her Majesty, at Frogmore; Mr. Toward, ditto, at Osborne; Mr. Fleming, from Trentham; Mr. Coburn, Caenwood, the Earl of Mansfield's; Mr. Forbes, gardener to the Duke of Bedford; Mr. Spencer, from Bowood; and two first-class-carriage gardeners from Scotland, Mr. James Macintosh, gardener to the Duke of Buccleuch, at Drumlanrick Castle; and Mr. Sharp, gardener to the Earl of Eglington. But not one out of all these, and a hundred others, could say he had seen a crimson Geranium. They all had heard of it, as we all did about the double white Hepatica; but that was all. I heard of it, however, three quarters after the eleventh hour.

At the end of August, 1851, a spruce young Englander called at Shrubland Park, and offered himself to succeed your humble servant, to look after the flower-beds. "Did you ever see a crimson Geranium?" said I. He threw himself back in an arm-chair, put up both his hands to his eyes, and remained so for some time,—I think I see him now. At last he sprang up and exclaimed, "By Jove, I have seen one." "Well, if you will bring me a plant of it in bloom, I will guarantee that you shall get the place;" for it was an understood thing between Sir W. Middleton and myself, that no one should succeed me till I first approved of him. The bargain was struck, the man left, and in three days it was told him that he was engaged to succeed Beaton. But he had very nearly done me when he came to take possession. He did not bring the crimson Geranium with him, and I left without it; but with a strong assurance that I should have it next season. It was at some remote cottage, and no more than a mere cutting of it could be had. Well, I had it at last; and in the second batch of pure seedlings from it one of the seedlings appeared, from the seed-leaf, quite different from anything I had ever seen, and that one is now the *Imperial Crimson*; and the *Imperial Crimson* is the nearest to the original crimson mentioned by Miller that art has hitherto been able to effect. The original *Crimson* rose with a shrubby stalk five or six feet high; the *Imperial Crimson* will not rise above one foot, and is different in the style of growth and in the colour of the flower from all other Geraniums. Therefore, it does not come into competition with a single kind now in existence. It is the head of a new race: and I venture to predict that it will last as long as the *Golden Chain*; the colour of it will agree with that of any one of the present race of bedding Geraniums. On a riband border it will come in next after the *Golden Chain*; and, by-and-by, it will form one row of the much-coveted shaded assemblage of tints, from white to dark purple Geraniums. But the original tendency to run into *Nosegays* is the first point to which it should be applied. I am only two years in advance of other breeders who may now follow the same track with equal chances of success; but my ex-

perience is freely and willingly offered to any one who chooses to ask any particular point in this strain of crossing. I know the effects of crossing the *Imperial Crimson* with every Geranium now in general cultivation, and much time may be saved by going the right way to work.

A clear scarlet *Nosegay* of the colour of *Tom Thumb* is of no use in planting; the one cannot set off the other. All that could be gained with a Tom-coloured *Nosegay* would be this:—a stranger could see you had two kinds of scarlet Geraniums—two beds or two rows—which he might not perceive if the two were *Punch* and *Tom Thumb*. Therefore avoid crossing it with scarlets, unless it is to prove what I say. *Mrs. Vernon* is one of the best to cross with it for reddish purple; and the "old crimson *Nosegay*," which has no crimson in it, is the best to cross for dark purple. Crosses between the *Imperial Crimson* and *Harkaway* are extremely pretty, and very useful in planting front rows. This is the cross which will yield all the *Dendrobium* tints; and crosses between it and the old purple or pink *Nosegay* will give an improved habit to the old race. The *Model Nosegay* is of that cross, and is now the best bedding *Nosegay* out of my own hands, except my *Miller's Nosegay*, which is too dark for some people. I sent it to be tried and seen at Kew. Mr. Craig seemed particularly taken to it. But the *Model Nosegay* is more an answer to a question put to me hundreds of times, "What is a *Nosegay*?"

There is my model of what a *Nosegay* should be. Buy it and prove it; if you like that style, help us to improve and multiply the colours, or tints: if it should not come up to your fancy there is little harm done. On a riband border it will come in between old plants of *Tom Thumb* and old plants of *Punch* or *Compaetum*. In shading, or in riband planting, one row of any *Nosegay* has the same effect in "cutting colours" as a row of white flowers; but with white stripes the harmony of colours is entirely gone: while by the use of the right tints in *Nosegays* the harmony of colours is complete, with a distinct difference in the styles and habits of the plants, which is the great aim of those who have been pushing me these fifteen years past to do something for the style. I despaired of success for a very long time; but since I got hold of the *Crimson* I look upon it merely as a work of time. And now I invite the best breeders in the three kingdoms to compete against me, and prove who is the cleverest man among them. As I have had a long practice, and a two-years' start of them, I cannot enter the lists—it would not be fair to do so.

During the first three generations of this strain of crossing, 999 seedlings out of every thousand will not be worth a straw; but crossing with the best kinds, in the third generation, will give more than one-half of the seedlings good enough for private use: after that the improvement is more rapid. Crosses between *Imperial Crimson* and *Model Nosegay* will be very pretty for riband work, but not worth for trade. There are two match beds of *Model Nosegay* in the centre of the Experimental Garden this season; and anything we plant there, is, or should be, good enough for the Queen. But we can hardly muster enough of *Imperial Crimson* for one bed next season. Every little morsel of it was swept right away from me—but I had my own price for it; and Mr. A. Henderson, who came down to see it, never hinted at abating one farthing from my price. But, recollect, the plant is not merely a new Geranium with a new colour, but an entirely new strain, or race, in the order to which all Geraniums belong; just the same as if it were new from the banks of the Orange River in the Cape Colony—that strain being a vast improvement on the habits of the best growing bedders.

But we must certainly improve our lawns before we go very deep in shading. It is like putting the gentleman on the top of the beggar to attempt the finer touches of our art of planting while Plantains, and Daisies, and Dandelions cover the face of the lawn: that would be but

luxury in rags and sackcloth. Let us have the full and luxuriant spring of the *Spergula pilifera*, and we shall do the rest at our ease. But, above all, let us see that we are not put off with another *Spergula*—I mean *Spergula saginoides*—which is no good. That is the plant which I and most British gardeners have called *Sagina procumbens*; and in so saying we were all wrong. I traced them all on purpose; and I am obliged to a botanical friend for the following memorandum, which sets all speculations about the “new Grass” at rest; it is taken from De Candolle’s “Prodromus:”—

“*SPERGULA PILIFERA* (D.C., *Fl. Fr.* 4, N. 4391).—Leaves opposite, linear, awned, rather stiff, glabrous, in bundles; stems creeping, branched, tufted; peduncles very long; petals twice as large as the calyx; seeds egg-shaped; hardy perennial; native of Corsica, on the highest mountains; flowers white; July and August; plant three inches high.”

Awned Spurry, or, literally, Awn-bearing Spurry, is the proper English name of the “new Grass.” Some people put the stress, or accent, on the *u*, which is wrong, the accent is on the *e*—*Spér-gu-la*. September and October are, perhaps, the best months to plant a lawn with good strong plants of this *Spergula*, and “cut according to your cloth” must be the rule. Four inches apart every way will be the best distance; but some will plant much farther apart, and plant again between; but, as in other things, the more haste the less speed. The grand secret is, to have an immense stock of plants before you begin to “plant out;” but out with them in the open air as fast as they are hardened off, if you have them from cuttings, or as soon as they are fit to handle, if they are seedlings in seed-pans. There are so many square feet in an acre, and so many square inches in a foot; and if you mean to plant at four inches every way apart, you can soon cast up how many plants would plant an acre. From a good stock to begin with, a boy, or a girl, or her mother, and one of the improved Waltonian Cases, without candle or lamp, could propagate in June, July, and August, a sufficient number of plants in one month to plant an Irish acre of ground. That is some data to go upon. Some would do less, and some three times as much; and some will not try, or believe. Whoever saw an edging of Camomile laid down in the spring will know how to dispose of the new plants as fast as they are propagated. Every alley in the garden will be planted with it, on the colouring plan of six or eight plants in a little tuft, and one tuft one inch from the other, till every spare inch in the kitchen garden is full of it.

D. BEATON.

LOOKING AROUND US.

GESNERA ZEBRINA.

TREAT as directed last week for *Achimenes*; and it will bloom in autumn and winter in a house averaging 50° at night. The only thing is, that, grown wherever it may be, the leaves should not be touched with the sun when they are moist; and therefore care should be taken to give air early. The sun’s rays will also be too powerful for the fine colours of the foliage until towards the end of October: a little shade to blunt their fierceness will therefore be advisable in the summer months. Fibry loam, and a little peat, leaf mould sweet and decomposed, and silver sand, grow these plants well. They have no objection to a thin surfacing of rich compost once or twice during the season.

BALSAMS.

There have been several inquiries respecting these. To have them in June and July in fine order, the seeds should be sown in February and March; and the plants supplied with heat, moisture, and abundance of air; and be shifted, as fast as they require it, into their fruiting-pots of eight or twelve inches. To have fine plants in

pots in autumn, it will be time enough to sow in May in a very gentle heat, and to grow the plants at first in a cold pit or frame, kept rather close at first, and with more air afterwards. For this purpose nothing is better than a moveable garden-frame, which, after the middle of June, can have its four corners raised on pots or bricks; so that air can circulate all round and through the plants from the bottom, as well as tilting the sashes back and front. Such plants are generally more branching and robust than those grown in lean-to greenhouses. The best plan, however, to have gorgeous Balsams in autumn, and with but little trouble, will be to sow the seeds in a slight hotbed or in a pot by the chimney corner, and to be set in the parlour window when the seedlings are up; and when pretty well hardened, prick the plants off into a bed of rich light soil, consisting of fresh loam, leaf mould, and sand, just as you would do young Celery. Protect them at first from bright sunshine and cold nights with a mat thrown over a hoop, or with a piece of glazed calico, which would be better, as it would permit the light to pass in a bright day. As soon as the plants are as strong as Celery plants are when generally planted out in ridges, the Balsams may also be transferred into rich, well-dunged soil, where they are intended to bloom—say at least two feet, or two feet and a half apart; and if well-watered when they need it, and protected from excessive high winds, I have great fears that the owners of such plants will pass with something like disdain the banks of Balsams in pots at our autumn exhibitions, such as the Crystal Palace in the middle of September. On some occasions we have noticed that by far the best plants staged on such occasions showed symptoms that it was only very lately they had been honoured with pots. For such a Show it was indispensable the plants should be shown in pots; but I was not aware that there is any decided rule that the plants should always have been grown in pots.

To make sure of growing the best double Balsams in pots, it is also a good plan to keep them in three or four-inch pots until they open their first bloom, and from them you can judge of their quality. Then select only the plants with the best, or such as please you; pinch every flower-bud off; repot and encourage to grow; and, after the roots are filling the last shift, then allow all the flower-buds, that have room, to open, and the plant will be covered all over with fine flowers. Your chief care would thus be spent upon plants that would please you by their fine flowers. It is gratifying to find that these fine old things are getting to be grown plentifully again in our large gardens.

COCKSCOMBS.

These require similar treatment, only they like more moist heat in their early stages. One correspondent complains that out of thirty large plants he has not above two combs that are well shaped; and that, as he wanted six good ones, he is sorry that he threw away more than a hundred seedlings. There are several modes of growing Cockscombs, each successful when rightly carried out. I will mention one that I used to find simple and easy when I set store by these beauties. As soon as the seedlings were half an inch high they were pricked off into pans and boxes, about an inch and a half apart, or oftener one inch, to save room. Here they were encouraged to grow fast at first, and, as they became thickish, they did not get so much water. This caused the little things to start their combs; for, as soon as a plant cannot extend itself by buds and foliage, in self-defence it tries to reproduce itself by seeds, and the comb is just the general receptacle for the true flowers and seeds. In a few days the form of the combs will show themselves; the branchy-pointed ones are passed over, and the nice-shaped ones are lifted out with little balls, after being well watered half a day previously, and are transferred to light, rich soil, in three or four-inch pots, and

plunged in a little sweet heat, or set near a flue, or a hot-water pipe; but the plunging is best. Few combs will then disappoint you, and you will have the satisfaction that all the care you give will be well bestowed; for as the leaves grow, so do the combs: in fact, the plan throws the most of the strength of the repeated shifts into the combs, instead of a tall stem and a number of large leaves. The plants are thus almost sure to be dwarf, and nearly uniform in size—a fact of importance when you wish either for row in a house, or a certain number to exhibit.

GERANIUMS, OR PELARGONIUMS.

These must now be kept cool, moist, and airy. The plants should have the training finished; but using as few stakes as possible, and these kept out of sight, as there is nothing ornamental in a fine whittled stake. Many large plants will do with one neat inconspicuous stake in the centre, and a string, or wire, round the rim of the pot to which the lower branches are fixed. If the plants are very luxuriant, a few of the larger leaves may be removed, that the sun may shine more freely on the rest, and more relief and strength be thrown into the flower-buds. As soon as the flower-buds are fairly knotted for bloom, weak manure water of a cooling nature may be frequently given. If given earlier, it will have a tendency to encourage Cabbage-like foliage. Given when the flower-buds are formed, it will throw more strength and vigour into them.

The succession-lot must be allowed to come on more slowly, and should experience no checks for want of water, &c. The autumn lot should now have their last shifting, and the last stopping be given ere long. Scarletlets of all kinds may be potted on; but the finest blooming will take place only after the pots are full of roots. The soil should be poor rather than otherwise; and when the flower-buds come thick, then additional strength should be given by surface dressings and manure waterings. We noticed in scarlet-beds last season some wonderful foliage, but thinly-scattered flowers; and to remedy this defect, the beds have been well dunged and deeply dug this year! The enthusiastic amateur could not see otherwise but that he must have glorious masses of scarlet in July and August, and looked very incredulous when told, that, if he succeeded, he must remove many a basket of large foliage. Turning the ground frequently before planting, and a little surface dressing merely to give the plants a start, would have been more likely to secure the desired result. Unless in the driest seasons, most beds of scarlet Geraniums, planted out, are apt to be too luxuriant, especially in the autumn months, when the outside garden is most enjoyable. R. FISH.

THE HERBARY.

It has often occurred to me that writers in THE COTTAGE GARDENER have hitherto neglected the humble herb garden. A Beaton directs all his powers to hybrids, bedding-out plants, and their arrangements in the flower garden. An Errington takes the luscious fruits under his fostering care. A Fish devotes his attention to the greenhouse and its numerous inhabitants. A Robson tells us how to cultivate in the best manner the useful products of the kitchen garden; and a Keene tells us what to do every week; whilst to my care have been given the stove plants, the trees of the forest, and the lovely florists' flowers. Various other writers have written on as various subjects, all pertaining to the garden; but the no-less-necessary herbs for the pot, to give a relish to our food, have not a representative amongst us. And as now is a fitting season for propagating and setting the herb garden in order, I think a brief paper or two on the subject,—humble though it may be,—will be useful to many of the readers of THE COTTAGE GARDENER.

In order to be more perspicuous I shall divide or classify the subject into—

- 1st. Herbs used for the pot for seasoning and for garnishing.
- 2nd. Herbs used for their perfume.
- 3rd. Herbs used for tarts.
- 4th. Herbs used for salading.
- 5th. Herbs to be avoided on account of their poisonous qualities.

1ST. HERBS USED FOR SEASONING AND GARNISHING.

BASIL (*Ocimum basilicum*).—There are two varieties, the Sweet and the Bush Basil. The first grows a foot high, and the other six inches; both from the East Indies. They are tender annuals. Basil is used in highly-seasoned dishes, and in soups. It should be sown on a gentle hot-bed in April, and planted out, six or eight inches apart, on a warm border. It is generally used green; but may be dried and kept in a dry, cool room for winter use.

CHIVE (*Allium schanoprasum*).—A hardy kind of everlasting Onion, native of Britain, though rare. It grows in clusters, and is easily increased by division. Used for seasoning omelets, and for soups. A dozen bunches, or, perhaps, as many more, will be sufficient for a small family. It is also used to eat raw, and is accounted milder than Onions.

FENNEL (*Anethum fœniculum*).—A hardy perennial, easily propagated by seeds sown thick in spring, the seedlings to be transplanted a foot apart. They will last for several years if not allowed to run up to seed. There is a variety whose stems swell considerably; this is named *Finochio*. The thickened part should be blanched by earthing up, and is then very tender. This kind is propagated by division in spring; or it may be raised from seed, and transplanted in drills six or eight inches apart, and earthed up something like Celery. The tender stalk and leaves of Fennel are used in fish sauces. The blanched stalks of the variety *Finochio* are eaten raw with oil or vinegar, and by some much esteemed. By earthing it up at various times it may be kept fit for use from June to December.

GARLIC (*Allium sativum*).—A hardy bulbous perennial found wild in Sicily. Each bulb is a cluster of subordinate bulbs commonly called cloves. It is used in various kinds of dishes; but should only be stewed a short time in the dish, on account of its strong flavour. It is more esteemed on the Continent than in this country. It is also used in medicine. It should be grown in a light dry soil, not too rich; and the cloves should be planted in spring, in drills two inches deep and six inches apart. They will quickly come up, and should be frequently hoed to keep down weeds and freshen the soil. Gather when the leaves turn yellow, spread them in the sun to dry, and tie them up in small bundles, and hang them up in a dry room; they will remain good till spring.

HORSERADISH (*Cochlearia armoracea*).—A hardy British perennial, long cultivated in gardens. The most common use of this root is to scrape it in shreds, as an accompaniment to roast beef. The same shreds steeped in hot water, and when the water has absorbed the juice and passed through a fine sieve, is excellent to improve the flavour of mustard. It is used, also, in sauces, and winter sauces. To procure fine, straight, tender sticks of Horseradish, dig a deep trench in spring, and place a layer of dung at the bottom; then make a sufficient number of strong-sets, and place them in a row, six inches apart in the centre of the trench, cover them in level, and keep the ground clean. They will push through, and the second year will be fine, straight sticks, ready for use; but the third year they will be in greater size and perfection. There must be no dung amongst the soil; or the plants will send out side-roots in search of the dung, and the crop will not be so good.

LEEK (*Allium porrum*).—A hardy biennial, requiring a light, rich soil on a dry subsoil. It is used in soups; and

when blanched the stems are stewed and served up with white sauce, like Celery. For the main crop sow now thick; and when the plants have attained a sufficient size, draw drills on a border that has been well dug and dunged in the autumn previous. Let the drills be a foot apart, and the plants six inches apart, in the row. Choose showery weather for this operation. Plant deep in order to have a longer blanched stem. Hoe and stir the ground frequently between the rows, and water freely in dry weather. By this mode of culture, this herb will prove to be very superior to such as are grown in beds in the ordinary way.

MARJORAM (*Origanum marjorana* and *O. Onites*).—The former is an annual, and the latter a hardy perennial; both much used as relishing herbs, in soups, broths, stuffings, and forced meat. The first is the more valued. In warm soils, the annual sweet Marjoram may be sown either in shallow drills or broadcast on a warm border. In colder soils and situations, it should be sown in spring on a gentle hotbed, and transplanted in May or June, on a warm border, dry and light. Those sown in the open air should be thinned out to six inches apart. The perennial may be planted in any open place, and is increased by division. These herbs may be used green; but to preserve them for winter use, draw the sweet Marjoram up in August or September, cut off the roots, and hang the tops up in a dry room for winter use. The other should be cut off at about the same time, and treated in a similar manner.

MINT (*Mentha viridis*).—A hardy perennial, native of Britain, in marshy situations, but not very common. There are two species more, but they are not used in cookery—viz., Pepper Mint and Penny Royal. Spear Mint is the common name of this kind, and is used largely in soups, sauces, and to give a flavour to Green Peas. Even the flavour of young Cabbage is much improved by a few sprigs of Spear Mint boiled therewith. It is propagated easily, either by laying the long running shoots in drills, or by planting the young tops in May, in beds six inches apart from plant to plant every way. Spear Mint may be easily forced to obtain young shoots early, by placing the runners in a shallow pan, or on a gentle hotbed, as early as they may be required.

ONION (*Allium cepa*).—A hardy biennial, much esteemed in this country, and in Spain and Portugal, and in almost every part of Europe. Its uses are well known. It is eaten raw in both its young state and when full grown; also in sauces, pickles, and in soups, stews, and for stuffings, and roasted in the oven or before the fire. No vegetable, with the exception of the Potato, is so universally in use for so long a season. My first situation in gardening was with a market-gardener at Leeds, in Yorkshire; and there I observed then, and ever since, more Onions grown than in any other part of Great Britain. Cart-loads upon cart-loads of this savoury herb, both in a green and dry state, according to the season, are brought to the market twice a-week, and are all disposed of at remunerative prices. There are numerous varieties—such as Deptford, Strasburgh, White Portugal, Brown Spanish, Globe, James's Keeping, Blood-red, Silver-skinned for pickling, Potato Onion, Tree Onion, Tripoli, Lisbon, Welsh, &c. The best are the *Strasburgh*, *Deptford*, and *White Portugal*, for spring sowing; and the *Tripoli*, *Lisbon*, and *Welsh*, for autumn sowing in August. The culture of the Onion is pretty well known, even to the poorest cottager; so I need not enlarge upon it. I may, however, state that it does not quite yield a productive crop on wet or thin, dry soils; but in a good deep loam, with a dry subsoil, it yields abundantly if the ground is well manured. I would always recommend the sowing in drills, in preference to broadcast, so generally adopted. To obtain large Onions—such as were imported—sow about the 12th of August, and early in spring prepare a plot of rich ground, and transplant them in April or May in rows, taking care not to plant them

deeper than the actual roots. Water freely, and keep the ground well hoed. They will produce large, sound bulbs, which will be mild in flavour, and keep well. The same method will answer well with Onions sown in a gentle hotbed, and transplanted at the same time; but this latter method is more troublesome. The largest Onions in this country were obtained from the variety named *Tripoli*. The *Welsh* Onion does not bulb: hence, if sown, always to be gathered and used in its green state. The Onion, to be kept for winter use, should be drawn up as soon as the tops are yellow, and laid on the ground to dry and harden. They may then either be stored away on shelves in a dry, cool room, or be tied up in bunches, and hung up to the rafters. In Cheshire the market-gardeners hang up these bunches against the east or west walls of their houses. I saw some hanging in such situations, where they had hung all the winter, last March, and they appeared as sound as the day they were placed there.

T. APPEBY.

(To be continued.)

THE SCIENCE OF GARDENING.

(Continued from page 107.)

ALTHOUGH plants will not grow upon soils composed of the earths only, yet these have a great influence over plants, not merely by their secondary powers of regulating the amount of moisture, heat, &c., but by entering directly into the constitution of the plant; for it is a result of experience, to which we know of no exception, that a plant contains more of any given earth, if grown in a soil where it predominates, than if grown in a soil where it is in less profusion. We have already stated some examples; but the fact was first pointed out by Saussure, who found that the *Rhododendron ferrugineum*, when growing on the calcareous formation of Mount Jura, contained in its ashes 43.25 per cent. of carbonate of lime, but only 0.75 of silica. On the other hand, the ashes of the same plant, from the granitic district of Mount Breven, contained, 2.0 per cent. of silica, but only 16.75 of carbonate of lime.

However varying in the proportions, yet every soil is composed of silica, alumina, lime, magnesia, oxide of iron, salts, and animal and vegetable remains. The most important consideration is, what proportions those are which constitute a fertile soil.

The *beau idéal* of a fertile soil is one which contains such a proportion of decomposing matter, and of moisture, as to keep the crop growing upon it always supplied with food in a state fit for its consumption, yet not so superabundantly as to render the plants too luxuriant, if the object in view is the production of flowers or seed; but, for the production of those plants whose foliage is the part in request, as Spinach and Rhubarb, or of edible bulbous roots, as Onions, which have a small expanse of leaves, so as to be almost entirely dependent upon the soil for nourishment, there can scarcely be an excess of decomposed matter presented to their roots. Spinach, on rich soils, will yield successive cuttings the same as Asparagus; the latter, especially, demands abundant applications of nourishment to its roots; since, like the Onion, it has little foliage and slightly fibrous roots, at the same time that, like the Spinach, it has to afford repeated cuttings; and thus, requiring a repeated development of parts, needs abundant food in its immediate neighbourhood.

A soil with a just proportion of decomposing matter will be capable of absorbing moisture during the droughts of summer from the atmosphere, for the most fertile soils are always the most absorbent: yet it must not be too retentive of moisture, which is the case in such soils as contain too much alumina; neither must it too easily part with moisture—a fault which is a characteristic of those soils which contain an excess of silica. A subsoil of gravel mixed with clay is the best, if not abounding in oxide of iron; for clay alone retains the moisture on the arable surface in too great an excess; and sand, on the contrary, carries it away too rapidly. Chalk is a cool subsoil; and if the surface soil is of average quality and depth, crops upon it are not liable to suffer from drought. It is, however, evident, that to insure these good qualities in any soil at all seasons is impossible; and it is as manifest that a soil that would do so in one climate would fail in another, if the mean annual temperature of them differs, as well as the amount in inches of rain which falls during the same period. For example: in the western parts of England

more than twice as much rain occurs as in the most eastern counties, or in the proportion of 42 to 19; therefore, a soil in the east of England, for any given crop, may be richer and more tenacious than the soil required for it on the western coast.

Alumina, or clay, imparts tenacity to a soil when applied; silica, or sand, diminishes that power; whilst chalk and lime have an intermediate effect. They render heavy soils more friable, light soils more retentive. These simple facts are important; two neighbouring gardens, by an interchange of soils, being often rendered fertile, which, before, were in the extremes of heaviness and lightness.

From these statements it is evident that no universal standard, or recipe, can be given for the formation of a fertile soil; but a soil, the constituents of which approach in their proportions to those of the following, cannot be unproductive in any climate. It is a rich alluvial soil which Mr. Sinclair, in his "*Hortus Gramineus Woburnensis*," gives as being the most fertile for the grasses:—

"Fine sand, 115; aluminous stones, 70; carbonate of lime, 23; decomposing animal and vegetable matter, 34; silica, 100; alumina, 28; oxide of iron, 13; sulphate of lime, 2; soluble, vegetable, and saline matter, 7; loss 8; total, 400."

It may be added, that, to constitute a soil eminently fertile, much of its earthy particles must be in a minute state of division. In the above analysis, 185 parts only were separable by sifting through a fine searce; 215 parts were impalpable; whereas poorer soils will often have 300 parts of coarse matter to every 100 of finely pulverised constituents.—J.

(To be continued.)

PINE APPLE SEEDLING AND BARBAROSSA GRAPE.

IN your paper for April the 12th is a notice of a seedling Pine Apple, which, your correspondent appears to think, was raised at Moseley Hall. Although the main stock is in Mr. Fairie's hands, it was not raised there, but a few miles distant, by a hard-working, industrious gardener. It certainly possesses many good qualities, such as compactness and good flavour; but is surpassed by a seedling, equally dwarf, which has been raised in the Dukeries, Notts.

The treatment of the *Barbarossa*, as followed at Eserick Park, does not always produce full crops of fruit, for the appearance this season is anything but what I should like; and, after all, what is it but an uncertain, thick-skinned, insipid fruit, not to be compared with the *Lady Downes*, which is a certain bearer, good keeper, and good-flavoured fruit—in fact, the best late Grape I am acquainted with?—EBOR.

MANAGEMENT OF GOLD AND SILVER FISH.

IN accordance with your wishes, I have given an account below (as far as I am able) of the treatment of gold and silver fish, which I hope will prove interesting to your readers.

These beautiful little creatures, which are now the pets of almost every drawing-room, are rather tender and troublesome to keep, on account of the warmth of the climate from which they were originally brought.

In winter time, if they are in an aquarium holding about two gallons of water, and containing about six middling-sized fish, the water requires changing about once a-week, provided there is an equal balance obtained by plants or *Conserve*.

Their food should be a little vermicelli about once in two days (of which they are very fond). Care must be taken in the winter not to put the water into the aquarium cold. Let it stand in a warm room for two or three hours—it is then ready for use. In summer this is not required, unless the weather should have been unusually cold. In the height of summer the water requires changing about once in three days; but not an entire change, as removing the fish is likely to injure them.

To all who are admirers of that pretty ornament, the aquarium, I should advise no plants to be used, *i.e.*, if it stands in a situation where a good light shows upon it. Cover the bottom with granite, broken unevenly, to about the size of pigeons' eggs; then sift some fine shingle between so that the rough edges protrude above it; put the water in, and allow it to stand about a week exposed to the light; it will then become covered with *Conserve*, which will be found more healthy than anything ever yet introduced

into the aquarium (the rotting of the plants at the bottom causing the fish to be very unhealthy). Any reader who possesses an aquarium, and tries this, will find it to answer his expectation, and repay the little trouble it may cause.

Great care must be taken not to let the sun shine through an aquarium, as it is annoying to the fish;—the sun shines down upon them when in ponds, &c. This is easily altered by placing a screen in front during the time the sun shines upon the aquarium.

As to breeding gold and silver fish, they require to be removed during the winter from ponds situated in the open air. They thrive best in ponds into which warm water is constantly flowing. Yarrell says—"It is well known in manufacturing districts where there is an inadequate supply of cold water for the condensation of the steam engines, recourse is had to what is called engine dams, or ponds, into which the water from the steam engine (or condensed steam) is thrown for the purpose of being cooled. In these dams, the average temperature of which is about 80°, it is common to keep gold fish; and it is a notorious fact that they multiply in these situations much more rapidly than in ponds of lower temperature exposed to the variations of the climate. Gold fish are by no means useless inhabitants of these dams; they consume the refuse grease, which would otherwise impede the cooling of the water by accumulating on its surface."—G. M. B., *Yarmouth*.

ALOES FOR DESTROYING INSECTS.

IN reply to the inquiry at page 50, April 26th, with reference to the effects of Aloes as a destroyer of aphids, &c., "F. W. S." begs to inform the Editor of *THE COTTAGE GARDENER* that the experiment has been tried in his own, and in two neighbouring gardens, and has proved a total failure.

A syringing with the solution produced no effect whatever on the aphides; and even after an immersion of the plant in the solution to the discoloration of the foliage, many of the aphides were, the day following, as lively as ever.

"F. W. S." is now trying the "Gishurst Compound," on the efficacy of which he will be happy to report, if desired. At present he can only speak to its smell, which is truly abominable.

This neighbourhood (Melton, Suffolk), has suffered most severely from the ungenial weather of the past few weeks. The wall fruit and Pears (both on common espaliers and pyramids on the Quince) are all cut off, as well as the *Morello* Cherries. The Walnut trees have the appearance of being scorched; the young growth on the *Deodars* ditto; *Wistaria sinensis* has lost every blossom; and even more hardy and common things, as the Lime trees and Hawthorns, are much nipped on the side exposed to the north and east.

[We shall be glad to hear the result of your experience with the Gishurst Compound. Our own experiments with Aloes on the Peach aphides coincide with yours. Some of the very young insects were killed by it; but repeated immersions, on successive days, of the shoots attacked by them, left the full-grown aphides uninjured.—EDS.]

NEW DOMESTIC FILTER.

THIS is a very ornamental, simple, and effectual contrivance for filtering water for domestic purposes on a small scale. It consists of a glass vessel in the form of a bell-glass, with the mouth turned upwards. At the base there is a narrow bottle-like neck, through which a glass tube is introduced; one end being inserted into a ball of compressed charcoal, and the other left open to deliver the filtered water into the vessel below. The large bell-glass is filled with water,—it matters not how muddy or foul it may be,—and, filtering through the charcoal mass, is passed by the glass tube in a clear, limpid, somewhat dripping stream, into a water bottle, or any other vessel. The principle is good, and its action unexceptionable.

CHUFUS, OR EARTH ALMONDS (*Cyperus esculentus*).—This produces tubers about the size of a Chestnut; they resemble it in taste, but are more delicious. They are very productive. We counted the product from one tuber, and the result was four hundred perfect tubers, exclusive of several small ones. This esculent is worthy of cultivation. Plant, from the 15th of April to the 1st of June, in drills two feet apart and twelve inches asunder, one tuber in a hill.—(*American Country Gentleman*.)

THE CAUSES OF BARRENNESS IN CERTAIN FRUIT TREES.

(Continued from page 106.)

THE APPLE.—It is a strange fact that some Apple trees, which have for years borne inferior crops, or perhaps, scarcely any, will commence bearing in any portions which become cankered. This is peculiarly the case here with some old *Ribston Pippins*; but I must observe that the fruit produced from such branches is not so juicy as from healthy shoots. They become somewhat dry and mealy soon after Christmas; but with us they are generally larger than others, and of a much higher colour. In most cases I have found that root pruning is highly efficient for inducing a fruitful habit. Some persons resort to cutting back old trees into the old wood, in order to renew them; but I never knew the practice to prove satisfactory. I have seen, many years since in the neighbourhood of the metropolis, trees with limbs of considerable size cut back to about five feet from the ground—reduced to mere stumps, and this along whole lines in kitchen gardens of some pretensions. I had an opportunity of noticing such trees for years; the first year or two after pruning they made such fine-looking growths, that the operator would consider them the best feature in the garden. These trees bore, at two or three years after this hard pruning, a sprinkling of moderate fruit; but they soon began to show marks of age, and, indeed, most of the trees cankered worse than they had done. They, in fact, became unsatisfactory, and were shortly replaced by young trees. There is little doubt but that roots in old trees become what is vulgarly called “hide-bound,” which means, if it means anything, that some constriction or induration has taken place in the roots.

THE PLUM.—Here, again, we have a case after the manner of the Apricot. Most Plums are free enough in the production of blossoms; but they are all extremely susceptible of atmospheric influences. Frost is, of course, the greatest enemy; but, in the absence of frost, I have known repeatedly Plums covered with blossom and yet set badly: this is at times unaccountable. Plums are sometimes barren through grossness, but root-pruning will speedily reduce this. Like the Apricot, the permitting of gross shoots to ramble unstopped is a sure source of barrenness.

THE PEACH AND NECTARINE.—It is very seldom that we have to charge these with being short of blossom; nevertheless, with some persons they produce but little superior fruit, which, indeed, is tantamount to barrenness. In very many cases the ripening of the wood (the importance of which has been kept in view since the very commencement of *THE COTTAGE GARDENER*), is still but imperfectly carried out; and so long as this is the case, we shall hear of defective or ill-conditioned crops.

The ravages of insects, too, are another source of barren trees. It is really of little use to suffer these pests to cripple or injure the early growths, and then in a rage at Midsummer to cleanse them. As to barrenness through ill-ripened wood, let any one carefully observe—as I have done for many years—the difference that exists in the blossoms of badly-ripened wood and the reverse. They will find the unripened blossoms with poor, half-abortive-looking stamens; the pistil, instead of protruding boldly in free development, half concealed—unable to show its face. Such are the consequences of imperfect organisation and maturation.

I may now offer a few general remarks before concluding a subject which, to handle thoroughly in all its bearings, would require a little book to itself. I would refer to seedling fruit trees, which, in general, it is well known, are long coming into bearing. A few remarks on this fact may prove interesting to ingenious young minds who very sensibly resolve to have a reason for everything. We all know what a long time it is before seedling

fruit trees come into bearing. This, however, is not what we call barrenness; but it is well for beginners to know that this period may be much lessened by certain operations. One of the most certain plans by which to hasten the blossoming of trees of most kinds is, first to grow them with great rapidity, and then to give them a sudden check. First, fill well the system of the tree—this may be termed a free dispersion of the sap; then to take all possible means to solidify the parts, called technically ripening the wood; and finally, by the root pruning, to boldly arrest the rapid growth, and thus to concentrate the powers of the tree within a limited compass. Pinching, in this case, is of high service as a move towards the concentration point, but cannot be had recourse to in the earliest stages of the plant's growth. One of the most efficient modes to assist in carrying out the object is, grafting the young aspirant for future fame on the extreme boughs of an old, healthy, and fertile tree. Here the scion is placed in a position where the impulsive motion of the sap is highly moderated, and the scion necessarily partakes of the fruitful and matured character of portions at the extreme points. R. ERRINGTON.

NETTING AS A PROTECTION FOR FRUIT BLOSSOM—POTATO CULTURE.

“IN your number of the 12th April your correspondent ‘UPWARDS AND ONWARDS’ recommended netting very strongly, which, I hope, protected his fruit on the night of the 31st of March and the 1st of April; for, if it have, I should feel obliged if he would favour me with the result, as he will have been more lucky than I or my neighbours. I have tried Shaw's tiffany; and the result is—nearly all the fruit is cut off. Will you be so kind as to inform me which is the best covering to protect trees from frost?”—FRUIT.

[What has once happened may happen again: therefore, since the late frosty ordeal, and also in reply to “FRUIT,” I find I must modify my recommendation as to placing the fullest reliance on netting as a fruit-blossom protector. And “is there not a cause?” for, according to the *Times'* meteorological observations, we have experienced the highest and lowest degrees of heat and cold ever known in the month of April. On the night of the 31st of March (the date of my last writing), the young fruit and blossoms on my trees remained perfectly uninjured, as I anticipated they would, under their canopy of snow. On the 1st of April the snow disappeared from off the nets, and I foresaw that we should have a severe frost at night: only as a point of honour, having written the day before to *THE COTTAGE GARDENER* in strict reliance upon that triple netting, I allowed it to remain unaltered; but it would have been better if I had placed some Russian bast mats over the face of it for two or three nights after the 1st inst., as you will see in the sequel.

Since I received “FRUIT'S” letter I have given the protection question my attention in searching about among my neighbours as to their ways and means of so doing, and I am now happily enabled to answer somewhat to the point. Thanks to the netting, as regards myself, I think I shall secure a good sprinkling of *Moorpark* Apricots (the only sort I grow), on a bleak western aspect against an Oxfordshire stone wall. Without that protection, I have no hesitation in saying, my crop would now be *non est*. Even as it is, it is a diminishing crop; for many of the fruit are falling off in consequence of the continual cold weather. My Plums appear to have set well under the above shelter.

As to my neighbours' prospects. My first covered his trees with Fir-tree boughs: crop, *nil*. My second did not cover his trees at all: crop, *nil*. My third has an old tree on a southern aspect not covered. It is an early, hardy, smallish variety, cultivated largely about here, and it has about half a crop. This feature I find general. Most of the trees of this sort, on a south aspect, have a limited supply; but the same sorts facing other points of the compass mostly *nil*. My fourth is most fortunate of all. A *Moorpark* tree, as my own, upon a west aspect, against a stone wall and unprotected, *nil*. Three trees against an excellent brick wall, south aspect, one of the common sort above, covered with three thicknesses of netting: a good crop. One *Moorpark*, protected with netting, with Russian matting in addition, on the nights of the 31st of March and 1st and 2nd of

April: *a good crop*. One *Moorpark*, protected with Russian matting never taken down from the time of its being put on, when the trees were coming into bloom, till the fruit had well set and come to the size of small nutmegs: *an excellent crop*.

So here we have three examples of coverings successful; and the latter, which one would have thought prejudicial to the prospective of a good crop, turns out to be the best. A couple of Peach trees, also protected after the latter plan, have a tolerable show of fruit; but the foliage seems to say it didn't like it. I advised several good syringings from the chamber-pail, washhand-stand-water, and all.

I have also, upon inquiry, learnt that other trees which were furnished with Fir-tree boughs entirely failed. One gentleman, known to these pages, informed me, that not only were the blossoms upon his wall trees cut off, but that the frost had made a foray into his orchard-house.

So far as my observation leads me to judge, we may not calculate upon more than one-third of a crop of stone fruit in these parts; and as the poor people grow Apricots upon their cottages generally, depending partly upon them to pay their rents, the deficiency will prove a serious loss. But, as I observed at first, modifying my recommendation, I shall continue my protection with the nets; though I must watch keenly for severe frosty nights, and place over them some bast mats, if the winds will allow it.

Amidst all this frost-biting, however, I am happy to say my Potatoes have escaped. They are only just peeping out of the ground, owing to a system I have adopted, which certainly ought to be known as far a-field as possible; and I will here write it down for the benefit of all whom it may concern. It was known long ago to the readers of these pages that I kept my seed in a cellar, spread out singly in layers, in wooden trays, in a subdued light, in a temperature ranging from 40° to about 50°, from the day that I took them up till I plant them again; when stout sturdy shoots are put forth, about two inches in length, almost as thick as one's little finger, and as firmly attached to the tubers as the limpet is to the rock. Suppose the ground on which the Potatoes are to be planted dug, and tossed about in the winter for the action of the atmosphere and the frosts, when the frosts happen to come in the winter time. I never use dung for Potatoes. My manure for them is lime fresh from the kiln, mortar rubbish, and soot and salt, by turns, which are spread over the surface of the soil just before planting time—in the middle of March as near as may be.

For early Potatoes I allow thirty-six inches between the rows; and for store Potatoes forty-two inches; mark out the ground, and place pegs where the rows are to be; strain a garden line between peg and peg, and place two rows of Potatoes upon the *surface* of the soil, at the same distances one would adopt if planting them in it. Then, exactly along the centre of the two rows, cast a spadeful of soil, right, and left alternately, though not exactly plump on to the shoots of the tubers; the crumbs that are afterwards shovelled out take that position, and we have a long trench now formed a good spit deep between the two rows of Potatoes. Observe, these trenches are intended eventually to be planted with the Cabbage tribe. Therefore, as each one is dug out, wheel some raw dung from the mixen alongside; supply sufficient of this to form a thick layer; and, pending the operation, guide the barrow-wheel along the site of the next trench that is to be dug out. Dig the dung into the bottom of the trench; strain the line; place another row of Potatoes along the surface; and cast out soil right and left, &c., as described above, and so on.

In digging out the trenches for the early Potatoes, do not make the spade bite quite so deeply as one would for the later varieties; and also prefer *Grange's*, and other autumn Broccoli and Cabbage, to take their stations between the former.

I have grown a special row or two of Potatoes on this plan for many years; and this is the third year of my taking to the system entirely. I recommend it for the following reasons:—As an amateur who likes to see everything shipshape in a garden that is overlooked by part of the living-room windows, raw dung hauled about a pane of ground after the Potatoes are taken up is not a pleasant object in the height of summer, and the ground looks blank and bald for a month or six weeks under the most favourable circumstances, till the Cabbage-worts which are there planted can recover themselves and have grown a little. By the trench rule these can be planted out expeditiously just at the right time, size, and stage, almost imperceptibly, and without waiting for the Potatoes to be cleared. Waterings of rich and rare liquids can

at any time be applied to them; and they will be found to flourish amazingly, seldom inclining to club. I never could grow the tribe so well as under this system, and never cut such excellent Broccoli, &c., as I have during the present season.

I confess I am fond of every gardening operation; but if I may claim one dislike, it certainly is to the operation of moulding-up Potatoes. On the above plan that delectable operation is quite superseded; for, from the moment they are planted till they are lifted, nothing is required to be done but to hand-weed a little, and to watch them grow; by reason that quite sufficient soil is applied—cast over them—in the first instance for their future welfare. The Potatoes do not appear above ground till the first or second week in May; thus, we may fairly augur, securing themselves from frosts. Their ripening process is also accelerated from the tendency of the haulm to fall down on each side, whence it receives a check, to the advantage of the swelling of the tubers. Light and air are also enabled to play round about them. If a dry season, they have a double bulk of soil to grow in. If a wet season, the water drains itself quickly away down into the trenches; nearly a double surface is gained for the earth itself to partake of atmospheric action. When the Potatoes are taken up, the soil falls down; and mould up the plants, which are a green, healthy, flourishing crop, at once upon the ground, to relieve the eye; and they do not appear so gawky and long-legged above ground in winter, and are much more capable of weathering it out to the last. Besides—and this is one chief point—I have no hesitation in saying that the Potatoes ripen at least a fortnight sooner by this method. Most people about here know that my Potatoes ripen early, and that I am always successful with my crop. So, to crown the system, I merely observe that I gained a sweepstakes first prize last year with Potatoes, &c., at our Agricultural and Horticultural Association's Show, which is rather a difficult feat to accomplish in Oxfordshire. Again: digging the ground, and wheeling dung in hot sultry weather over clean gravel walks; begging and praying a man to work for one when he cannot be spared from the hay and early harvest, or able to do six hours' work in twelve if he could be spared—all these difficulties are vanquished by what I will call the early-trench and thorough-cultivating principle in growing Potatoes.—UPWARDS AND ONWARDS.]

VEGETABLE CULTURE AND COOKERY.

(Continued from page 22.)

CUMIN.

THIS is an aromatic medicinal herb, cultivated for its seeds, which are carminative and tonic. The seed requires to be sown in a hotbed, in the spring, to bring the plants sufficiently forward so as to ripen the seeds in the open air in this country.

DILL.

The stem, leaves, and seeds of this plant are used medicinally, and also as ingredients in pickles, and in soups and sauces. The seed is sown thinly, in drills, in March; and as the seedlings come up and gain strength, they are to be thinned to twelve inches apart. They are to remain where sown; and, at the end of summer and autumn, they will produce leaves and heads of seeds for use. It may also be sown in the autumn as soon as the seed is ripe, which will produce a supply of strong plants early in the following summer.

ENDIVE.

There are three varieties of Endive in cultivation,—the *White Curled*, the *Green Curled*, and the *Batavian*, or *Broad-leaved*. The two former are used as salads, and the last as a culinary vegetable for stewing. It is the *Green Curled* which is grown as a principal crop, and the *White* for summer and autumn.

For an early crop, a little of the *White Curled* may be sown at the end of April or beginning of May; and, to succeed this, another sowing may be made at the end of May. During the middle of June, begin to sow the *Green Curled*; and again, at the beginning and middle of July, a succession may be sown, to come in for autumn use. Those sown at the beginning and end of May will come into use at the end of June and the beginning of August; while the sowings of June and July will furnish a supply at the end of August and during September.

For winter and spring use, the seed should be sown during the last week of July, or the first week in August.

Endive requires a rich and highly-manured soil to grow it quickly and tenderly. It should be sown thinly, broadcast on a

bed, in an open situation, with the ground well prepared and mellow. When the plants are three inches high, let the strongest be planted out in rows; and if the weather is dry, give occasional waterings till they are established. Frequent hoeings will encourage a quick growth; and when the plants have attained sufficient size, the leaves may be gathered together, and bound round for blanching, in the same way as is done with the Lettuce. Those plants from the late sowings in August, which are cultivated to stand the winter, should be planted out in warm and dry situations—such as on ridges, or sloping banks; and be careful, in tying them up, that the operation is performed in dry weather. Another mode of blanching Endive, besides tying the leaves together as before, is to cover the plants with large flower-pots, as is done for Sea-kale. And this I have always found to be the preferable mode; as the whole plant is then more sweet and tender, and is not so apt to run to seed.—ROGER ASHPOLE.

(To be continued.)

THE MARTEN CAT.

BELIEVING as I do that there are very few parties who are not, more or less, fond of "pets," more particularly in cases where such live stock is not commonly of a domesticated character, and having from my earliest infancy had a weakness for such "hobbies," I trust a few stray notes, by way of variation to the commonly beaten track, may prove of interest to many of the readers of THE COTTAGE GARDENER. Acting under this impression, then, I will commence an irregular series by my experiences with a thoroughly-domesticated Marten Cat.

Nearly thirty years have now lapsed since a relative forwarded to me two young Martens, taken from a hollow in a decayed trunk of a tree in one of his preserves. The gamekeeper (who carried out his "vermin-killing" propensity as a duty) had been sharply on the look-out for the Marten Cats for some considerable time past; and, on the 12th of May, 1829, had the satisfaction of seeing the mother of my after-"pets" fall dead at his feet, being shot just at the moment she was about entering to suckle her young ones. A very superficial examination of her convinced him she had young ones close at hand; and certainly not from the merciful motive to prevent the progeny dying a lingering death from want, but simply to prevent them "getting away if old enough to crawl, he was fully determined to find them out if possible." His exertions proved successful; for he finally determined in his own mind "that the young — must be in the hollow tree" before alluded to. To "get at them," however, presented a great amount of difficulty; the bole of this tree had been, most probably, of a century's growth; and the hollow (as proved by probing it with a stick) extended at least three yards deep into the very centre of the tree. To make certain of them if there, the keeper filled up the mouth of the aperture firmly with his coat, whilst he went to inform his employer of his luck, and ask permission either to blow them up with gunpowder, or obtain leave for the woodman at once to cut down the tree, as "it was only a harbour for all sorts of things that destroyed game." Now, it so happened that even the absolute confiscation of the estate itself, wholesale, could hardly have offered greater objections to its freeholder than the cutting down of a single tree; the matter, therefore, stood thus—Is the game, according to the dictum of the gamekeeper, to be "all killed, for nobody can do nothing if they be let go;" or must the tree come down? As a kind of compromise of inherent feeling on due inspection—as it was not yet confidently known, although positively asserted, that "they must be there, for they can't be nowhere else"—my relative suggested to cut a hole at the farthest depth any hollow could be ascertained. This was speedily effected; the result being the issuing into daylight of my future "pets." The moment the destroyer of their maternal parent saw the offspring, his dictum issued, "Oh! kill 'em at once, sir, afore they get away." "Not so," was the immediate rejoinder of his employer; "what evil, Sam, can *they* have done? and I fancy I know who will like them." They were, consequently, conveyed to me.

Now, as the relative circumstances of this incident may prove instructive, and interest various parties whose views would anything but assimilate on such points, I would anxiously desire to be especially distinct in my narration. The naturally-formed "nest," if so it might be called, was simply a collection of raw material, in the shape of bents of withered grass, dried leaves, and, strangely enough, a complete collection of squirrels' fur and tails. There was not a single feather of any kind; and, excepting

the bones in the tails of the squirrels, now perfectly dried up, not one bone was to be found anywhere among it.

Now, my friend never foresaw such would be the issue of the investigation of a Marten's Cat's nest; for, although somewhat inclined for the study of natural history by personal inclination, he had been taught by his subordinates to believe "one Marten Cat will kill more pheasants in one year than three guns." If so, this statement must apply exclusively to younger broods of game; for, as before said, not a feather of any kind was there discovered, or remnant in the shape of *bones*—squirrels excepted. I mention, somewhat emphatically, this point, because the decidedly carnivorous structure of the teeth would lead any naturalist to contrary opinions respecting this elegant quadruped. When taken, the young proved male and female; and as the dead mother was sent to convince me what they would grow into with attention, I felt interested in them, more particularly as by kindness never broken I knew I could tame anything. One could then barely see, but my recollection fails to say whether the male or female; the other for some days proved perfectly blind. The next question was, "How are they to be reared?" But, not to be beaten, inquiries soon solved this difficulty to one then enjoying all the energies of youth. A neighbour had a cat suckling; and with a right palpitating heart they were committed to her care—a fear preponderating that they would be instantly destroyed. Not so, however: she, poor thing, on the loss of her kittens (for a douceur to her owner), at once took every care of the little woodland strangers, and reared them as her own. The next day, unknown to myself, the prettiest tortoiseshell kitten, which had been secretly reserved, was placed with them, and all three were subsequently reared together.

At first the Martens seemed disposed to be spiteful and untractable, spitting and snapping if handling were attempted. A few days conquered this natural impulse, and they then became equally familiar with the kitten. In a very short time, however, their wondrous agility became manifest; their playfellow, the kitten, although supposed to be much older than they, being far behind in all their infantile games. The foster cat, also, about this time, seemed fully aware that she had been imposed upon, and began to illtreat them; they were, therefore, at once removed to my own house. Here, on occasional supplies of meat cut small, and generally a bread-and-milk diet, they thrived rapidly, and became (admittedly) rather *troublesome* than wild. Illimitable curiosity proved their failing; threats seemed dreadless to them, for they were continually in action. They were not "servants' favourites," and about six weeks after coming into my possession, a maid servant was, luckily, caught in the very fact of killing the male, that had always seemed the most indomitable and mischievous of these youngsters, and was, consequently, at once dismissed. The female of the Martens only now remained. She became "quite a pet." Agile, familiar, pleasing, and quiet, she well deserved to be such. The scrupulous cleanliness of this little animal was extraordinary; whilst if pleased or irritated the scent emitted was odoriferous, not offensive. Dogs of all kinds she evidently abhorred. Our own she beat; but strange dogs she scrupulously avoided, nor would any inducements cause her to be one of the company during their presence. Yet, strange to say, even in these cases, if *any* cat were shown to her, she would leave the upmost branches of any tree, or the roof of any outhouse instantly, without hesitation, or a moment's reluctance. Surely this affords a plea to the advocates of certain issue from early education in youngsters of other kinds besides Marten Cats.

When fully grown, it would "fetch" any object if thrown to a distance invariably, although sometimes playfully reluctant to "give up" the object thus attained. Its quickness of locomotion in any direction far exceeded anything I ever beheld. With a rapidity inconceivable it would ascend thirty-five or thirty-six feet, by means of a perfectly round iron spout, to the top of the house, using the wall at its juncture with the side of the spout for this purpose. Sometimes, if the weather were fine, and the sun shining, it would then lie full length for hours concealed in the cross-eaves spout, even if called to repeatedly only putting its head slightly over the side of the spout, and then as quickly relapsing into quietude and sleep again; but let one spot of rain, or a cat be placed on the ground, it would come down directly, and so far from avoiding inspection, would then at once voluntarily fondle in my waistcoat. Strange to say, it seemed to prefer, when ripe, the berries of the mountain ash tree and the white sorbett tree to all other provender. These it would gather itself, and even climb with the utmost rapidity the underside of the branches to attain coveted clusters; yet it would not eat of either apples, pears,

or even oranges. Although I was then, as now, a poultry fancier, and rearing numbers of chickens of many varieties, it never killed or ate a single one, nor molested the old hens, or eggs, at any time; still it would ferociously kill either a rat or squirrel, invariably eating it when just killed, if hungry, but burying it until wanted, if recently fed. The sight of either squirrel or rat seemed to recall all its innate nature, and any attempt to prevent their capture on such occasions assuredly caused it to bite with inconceivable savageness; yet, in every other instance, you might open its mouth, or play with it, even to wantonness, without any retaliation. At play, it never tired, although several parties in succession have tried to suppress its peculiar animation and activity—they themselves were invariably the first subdued. Although it would sometimes lap sherry wine, milk was its most favoured beverage. It was not by any means capricious, and would fondle instantly on any one proffering civilities, unless in very cold weather, when it would not voluntarily leave its warm corner for persuasions of any kind, the cat excepted. Its end was unfortunate; for, living at that time close on the suburbs of a large population, a youth, when "hedge-popping," shot my favourite, and never did I love so amusing a "pet;" besides which, the Marten Cat is one of the most elegant and beautiful creatures in existence, and the same animal that produces the so-called sable furs. I am assured no one who is fond of a "pet," will ever grudge the trouble of rearing and taming a young Martin. Still, I believe, had they left the nest, and been then caught, to thoroughly tame them would be impossible, so far as to allow them (as mine had), unlimited freedom. Under every circumstance, kindness universally displayed, combined with perfect calmness, is essential to completely domesticate such products of the wild; but, as a rule, the more naturally daring, the more familiar from careful tutelage do they become when taken into domestication. Should the opportunity offer, it is hoped the "petting" of a nest of young Marten Cats may afford as much pleasure to some one or more of your readers as, at that time, it did to—CHANTICLEER.

QUIET DRINK.

(By the Authoress of "My Flowers.")

THERE surely cannot be a more sad and appalling sight than that of a man,—a reasonable, immortal being,—made in the image of God,—"bought with a price," and capable of enjoying eternal life in the presence of "Him who sitteth upon the throne, and of the Lamb,"—and yet who goes down to the grave the victim of strong drink. It is so appalling, that it seems to overwhelm the mind; and yet, alas! it is so often seen in this our highly favoured land, that we are not so startled and overwhelmed as Christians ought to be.

It is a remarkable and dreadful fact, that intoxication is in no country so prevalent as in England. Where the true light shines,—where God's laws, and precepts, and revelations, are the most fully known and circulated,—in this very land—Christian, Protestant, and professing,—is the crime of drunkenness most peculiarly and painfully general. Among the middle classes, where order and decency are, of course, more observed than in the humbler ranks, there is still a great amount of quiet, respectable fondness for drink, which, with stealthily but determined hand, slays its thousands as surely as when it riots and revels in the streets. O, dear readers, what a blessing would descend upon us as a nation, as well as individuals, if we would but give up and put away from among us the abomination of drink!

John Walters was for some years a chemist, in the town of —. He was, as are all chemists, of superior education and cultivated intellect. He was, moreover, in politics and ways of thinking, one of the forward-movement men; and had rather an offhand manner and mode of speech, which we often observe in men of that stamp.

About three years ago Walters parted with his business to another chemist, and took up the trade of a brewer and spirit merchant. Whether he considered the former business too "slow," and wished to attempt something new, and more likely to succeed rapidly, I do not know; but he was soon going about in a little pony-gig for orders, and seemed much better pleased with his present circumstances than the past.

It is wonderful what a disposition there is in the world generally for public-houses, beer-shops, &c. Men who do not know what to be at next invariably take to this line of business. Gentlemen's servants, when they have made a little money, and

wish to leave service, are sure to settle down in a public-house, and too frequently repent it. But it is seldom that any one gives up a respectable and comfortable trade to take to another without some very strong and satisfactory reason. There is an old and a wise saying, "We know what we are, but we do not know what we may be." This applies, very pointedly, to all who are making paths for their own feet.

Walters did not keep a public-house, certainly—he was a wine and spirit merchant; but he had in his brewery that which is called a smoking-room, and it did quite as well as a tap.

Very soon after his removal to the brewery, he suffered deeply in the loss of two children. He was a very affectionate father, and the stroke was a heavy one. He had others left, to fill up the void; but that is a work of time, and not so easy a one as non-possessioners may think. We too often receive chastisements without knowing it; and sometimes we bow resignedly beneath the stroke, without at all hearing the rod. Ah! dear readers, I know by my own sad experience *some* of the depths of the evil heart. Many are visible to others and not to myself: but I have sounded many, and this is one, *Who hath appointed the rod is acknowledged, but the teaching of the stroke is very, very often overlooked.*

In what spirit poor Walters heard the rod I cannot say; but he kept on the brewery. Some time after this a tradesman in the same town failed, and Walters very kindly interested himself in his concerns. He called on several persons who owed accounts to the bankrupt, and who were known to him during his own chemical days, and they perceived that a change had come over him. He was looking ill and dispirited, and the jocund manner that used to displease some of his customers had deserted him. It was natural that his bereavement should have caused this, at least for a time; but, after hearing and seeing nothing of him for a very long time, he again called, and the unhealthy look had not altered: in fact, he was sinking into bad health. Not many months passed before we heard, quite suddenly, that Walters was in a dying state. His friends were all concerned at the intelligence: he had a wife and children to leave—he was only middle-aged, and it took the more distant ones quite by surprise; but it was a true report. His wife, wishing to get him into the country, and near clever advice, secured for a few months a pretty cottage in a neighbouring village. It was to be put in hasty order, the shrubs trimmed, and everything made neat. Walters was coming directly for change of air—the brewery was to be sold; and, if his health rallied, and he liked the place, the tenure was to be a permanent one. Before many days were over preparations were all stopped. Walters was worse; he could not leave his bed, or contemplate a move. He never rallied, but sunk rapidly into an untimely grave.

Suspicious had been afloat in the town that Walters had injured his health by drinking. He was not a drunkard, as that word is usually understood; but he had been drawn in by tasting, and contact with smoking-room frequenters—first one thing and then another, till his constitution suffered, and gave way. Poor fellow! he did not suppose, when he left his quiet, wholesome shop, that the axe was laid at the root of health, happiness, and life itself! Doubtless he never meant to indulge himself in the articles he dealt out to others; but he tampered with temptation—he looked "upon the wine when it is red, when it giveth its colour in the cup,"—and it stung him "like an adder." At the early age of forty-five Walters may be said to have hurried himself into eternity.

Drink is the grievous and deadly sin that slays its tens of thousands in Great Britain. Neither civilisation nor education has been able to stem the mighty tide. What it would have been without them we can, in some measure, guess; yet, with all the efforts and machinery employed, the love and power of strong drink are so terrible, that, wherever we turn our eyes, its presence or its effects glare hideously; but perhaps where it conches quietly and respectably it is most painful to behold. Soft names are given to it, kind hands cover it up, and cautious anxiety conceals the frightful features: but the deadly work goes on quite as secretly—and often more so; because conscience is not so likely to be aroused as when Satan ranges.

Nothing but the presence and power of ALMIGHTY GOD among us can check and subdue this national sin. The religion of the masses is form and not reality—"flesh and not spirit." And this is why religion—what is called religion—appears so weak against the enemies of our salvation. Civilisation and education, without real, Gospel, heart-renewing religion, are only the "new ropes," or the "seven green withes," that were but a "thread

of tow" upon the strong man's arms. They are powerless to bind us, either as a nation or as individuals. Our real power, strength, and glory lie in the fear of God, in a full reception and bold profession of the doctrines and precepts of our Covenant Head Christ Jesus, and in walking closely and carefully by their rules. The people of Israel said readily enough, "I go, sir, but went not." The people of England "profess that they know God, but in works they deny Him," specially in the matter of drink. Ah! let the *respectable* lovers of drink take warning by poor John Walters. Let them rise up and "flee as from an adder." Every man who avoids and discourages this sin will find a blessing and escape a curse.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 110.)

MEDLARS.

Broad-leaved Dutch. See *Dutch*.

DUTCH (*Broad-leaved Dutch*; *Gros Fruit*; *Gros Fruit Monstrueux*; *Large Dutch*).—This is by far the largest and most generally grown of the cultivated medlars. The fruit is frequently two inches and a half in diameter, and very much flattened. The eye is very open, wide, and unequally rent, extending in some instances even to the margin of outline of the fruit. It is of excellent flavour, but, in that respect, inferior to the following. The young shoots are smooth.

Gros Fruit. See *Dutch*.

Gros Fruit Monstrueux. See *Dutch*.

Large Dutch. See *Dutch*.

Narrow-leaved Dutch. See *Nottingham*.

NOTTINGHAM (*Narrow-leaved Dutch*; *Small Fruited*).—This is considerably smaller than the Dutch, rarely exceeding an inch and a half in diameter; turbinate, and is more highly flavoured. The young shoots are downy.

Sans Noyau. See *Stoneless*.

Sans Pepins. See *Stoneless*.

Small Fruited. See *Nottingham*.

STONELESS (*Sans Noyau*; *Sans Pepins*).—In shape this resembles the Nottingham; but it rarely exceeds three quarters of inch in diameter. The eye is smaller and less rent than in the other varieties. It is quite destitute of seeds, and woody core; but the flavour, though good, is inferior to that of the others, being less piquant.

MULBERRIES.

THE only variety cultivated in this country for its fruit is the BLACK MULBERRY (*Morus nigra*), and it is only in the southern counties where it attains perfection. In the midlands it ripens its fruit when trained against a wall; but it is doubtful whether the crop so obtained is sufficient remuneration for the space the tree occupies.

NECTARINES.

SYNOPSIS OF NECTARINES.

I. FREESTONES.

Flesh separating from the stone.

* *Leaves without glands.*

A. <i>Flowers large.</i>	B. <i>Flowers small.</i>
Bowden	Hunt's Tawny
Hardwicke Seedling	

** *Leaves with round glands.*

A. <i>Flowers large.</i>	B. <i>Flowers small.</i>
Pitmaston Orange	Boston.

*** *Leaves with kidney-shaped glands.*

A. <i>Flowers large.</i>	Duc du Telliers
Faichild's Early	Elruge
Rivers' Orange	Imperatrice
Stanwick	Murrey
White	Oldenburg
	Peterborough
B. <i>Flowers small.</i>	Violette Grosse
Balgowan	Violette Hâtive
Downton	

II. CLINGSTONES.

Flesh adhering closely to the stone.

† *Leaves without glands.*

A. <i>Flowers large.</i>	B. <i>Flowers small.</i>
Early Newington	None
Old Newington	

†† *Leaves with kidney-shaped glands.*

A. <i>Flowers large.</i>	B. <i>Flowers small.</i>
Roman	Golden

Anderdon's. See *Old Newington*.

Aromatic. See *Violette Hâtive*.

BALGOWAN (*Balgone*).—Fruit very large, roundish, inclining to ovate. Skin pale green, mottled with red on the shaded side; but entirely covered with deep, bright red on the side next the sun. Flesh with a greenish tinge, veined with red at the stone, melting, very rich, and highly flavoured. Flowers small. Glands kidney-shaped.

A very excellent variety, nearly allied to *Violette Hâtive*, but is much harder and a more vigorous grower than that variety. It ripens in the end of August and beginning of September.

Black. See *Early Newington*.

Black Murrey. See *Murrey*.

BOSTON (*Lewis*; *Perkins*' Seedling).—Fruit very large, roundish oval. Skin bright yellow on the shaded side, and deep red on the side next the sun. Flesh yellow, without any red at the stone, with an agreeable, but not rich, flavour. Flowers small. Glands round.

Remarkable only for the size and beauty of the fruit, which ripens in the middle of September; and requires a warm season to bring it to maturity. It is an American variety.

BOWDEN.—This is a very large variety, of a round shape. Skin greenish on the shaded side, dark red next the sun, and with a disposition to be russety. The flesh is melting, rich, and sugary, with a slightly astringent flavour. Glands none. Flowers large. Ripe in August.

The tree is a very dwarf and compact grower.

Brinion. See *Violette Hâtive*.

Brugnon Musqué. See *Roman*.

Brugnon Red-at-stone. See *Violette Hâtive*.

Claremont. See *Elruge*.

DOWNTON.—Fruit rather larger than *Violette Hâtive*, roundish oval. Skin pale green in the shade, but deep red next the sun. Flesh pale green, reddish at the stone, melting, juicy, and richly flavoured. Glands kidney-shaped. Flowers small.

A first-rate variety, ripe in the end of August and beginning of September. The tree is a vigorous grower, and an excellent bearer. It was raised by Mr. Knight from the *Elruge* and *Violette Hâtive*.

DUC DU TELLERS (*Duc de Tello*; *Dutilly's*).—This variety bears a close resemblance to *Elruge*, with which it is, by some, considered synonymous. It is, no doubt, another form of that variety, and differs only in the greater hardness and vigour of the tree. Glands kidney-shaped. Flowers small.

Early Black. See *Early Newington*.

EARLY NEWINGTON (*Black*; *Early Black*; *Lucombe's Black*; *Lucombe's Seedling*; *New Dark Newington*).—Fruit large, roundish ovate, enlarged on one side of the suture; apex ending in a swollen point. Skin pale green in the shade, but bright red, marbled with deeper red next the sun, covered with a thin bloom. Flesh greenish-white, very red next the stone, to which it adheres; rich, sugary, vinous, and very excellent. Earlier and much richer than the *Old Newington*. Flowers large. Glands none. Ripens early in September.

Early Violet. See *Violette Hâtive*.

ELRUGE (*Claremont*; *Oatlands*; *Springrove*; *Temple*).—Fruit medium sized, roundish oval. Skin pale greenish in the shade, deep red next the sun, interspersed with

dark brownish russet specks. Flesh pale green, reddish towards the stone, melting, juicy, and richly flavoured. Stone oval and rough. Flowers small. Glands kidney-shaped. Ripens in the end of August and beginning of September.

This is one of the very best nectarines. The tree is an excellent bearer, and forces well.

Emmerton's White. See *White*.

(To be continued.)

QUERIES AND ANSWERS.

HEATING BY HOT WATER IN PIPES.

"1. What should be the diameter of the underground pipes connecting the boiler with three-inch or four-inch radiating pipes—two-inch or one-inch? (Length, underground, twenty feet.)

"2. Supposing the radiating pipes, in houses to the left of the boiler, to be at a greater elevation (two feet) above the boiler than the radiating pipes in houses to the right of the boiler, will not the former pipes rob the latter of their share of heat?

"3. Can heat be subdued in any house by partially closing the valves between that house and the boiler? It is said that, by diminishing the aperture, the water will only flow more quickly. Would the object be attained by partially opening all three taps, if the house is found to be too hot when two taps are open and one shut?

"4. I am obliged to have the flow-pipe in one house, immediately over (almost touching) its return-pipe. Being short of height, will that affect the circulation materially, and should a flat piece of wood be interposed?

"5. What is the best boiler for burning coke? Coal makes so much smoke and dirt."—A COUNTRY SUBSCRIBER.

[1. We should prefer two inches to one inch for a conducting length of twenty feet, though an inch would answer: unless for the little extra expense, we would just as soon have a three or a four-inch pipe, similar to what is to be used in the houses. There need be little loss of heat in consequence. If that space could be covered with glass, there need be no waste of heat. Supposing that the twenty-foot space could not be so covered, but that the pipes went beneath a pathway or other ground, then a wall of brick, and, better still, of wood, might so enclose the pipes as to have them in a hollow drain. On the top of that there might be several air-gratings, to be opened and shut at pleasure, and also to permit of a pail of water being poured into the drain when necessary. Supposing that the end of the drain opened into the house, the heat radiated from the pipes would find its way there. If the air-gratings were open, especially at the end next the boiler, then the heated fresh air would be driven through the drain into the house; and to make that air moist as well as fresh and heated, all that would be necessary would be to keep the drain moist through which the pipes passed. Little heat would thus be lost on the twenty-foot distance, and the extra expense of larger pipes would be neutralised by the less expense involved in fixing, &c.

2. The pipes placed higher by two feet in one house than in the other will not necessarily rob the latter of their share of heat, provided, as in your case, both pipes start from the same height in the boiler. If, at times, there should be a tendency to this, then turning the tap partly, or altogether, for a very short time on the upper pipes, will give a full flow to the lower ones, and then they will look after themselves. We have had the management of houses where the flow-pipes started at unequal heights from the boiler; and here, without this management of the taps, the higher course of pipes would always be the hotter, because the opening in the boiler being fully nine inches higher than the lower one, the water at the top was always actually the hottest. This will not take place in your boiler when you have a T piece on the top of the boiler, as the main flow for both houses. You may, therefore, manage very well with two houses with the taps you mention, so as to shut off one at will, either altogether or partially so. Under your proposed arrangement, you will require to have a supply-cistern higher than the highest point of your pipes, and a half-inch air-pipe in the highest end of the pipes in each house. That open air-pipe to stand a couple of feet or so higher than the supply-cistern. If you had a supply-cistern on the end of the pipes in the house where they are highest, then an air-pipe in the other house would do. Or you might have a small supply cistern in each house; but then both cisterns must be on a level, whatever be the level of the pipes. If you contemplated

heating more than two houses from the same boiler, then by far the simplest plan would be to take one flow-pipe to a general cistern placed higher than the highest point would be; and, besides this one flow-pipe hole, to have as many holes in the bottom of the cistern as you wished for a flow-pipe to each separate house. These holes could be regulated by expensive brass plugs, and just as well by good cheap deal plugs. It matters not how different may be the level of the pipes in the different houses, provided all of them are above the level of the boiler. The whole returns could meet in one at the bottom of the boiler. Regulate your flow-pipes, and you need not trouble yourself about the returns, provided they are all open. When there are many departments, some will heat at times more easily than others under this plan; but there is no difficulty, if you just coax them to do their duty by regulating the plugs. The first we so managed, more than twenty years ago, was put up by the late Mr. Weeks, father of the head of the present celebrated firm; and by means of wooden plugs, with notches cut in the sides of some of them, we could get the pipes hot, or just moderately so, as we liked. Considering that Mr. Weeks was such a rare mechanical genius, we have often wondered he never hit on one simple thing. We had pipes in different places at very different levels, and Mr. Weeks had holes bored in the highest points, and a wooden pin put in there to let out any air that might accumulate; but then the pin had to be removed frequently, and sometimes the air would rush out hot enough to scald one. The little open air-pipe acts constantly; even when we sleep there can be no accumulation of air to prevent the water circulating. How simple it all looks now, when known and acted upon. Most of us can recollect the nice little pumps for extracting the air in some of the first attempts at heating by hot water. A piece of open gas-pipe—with one end higher than the supply-cistern, and the other soldered in a hole at the highest point of the water-pipe—beats, for utility and simplicity for the desired purposes, all the air-pumps in Christendom. When a little town of houses are to be heated, there is no plan equal to that adopted by Mr. Weeks, of taking a main flow and return for the whole length, placed lower than the pipes in the different houses to be heated, and each house connected thus with valves with the main flow and return. The pipes in these houses may vary in size, form, and height where practicable, provided they are all higher than the main flow and return. Whenever the valve, or tap, is moved, the heated water rushes up.

3. The third inquiry has been answered above. It is true, other things being equal, that the smaller the aperture the quicker the flow; but it is also true, that the smaller the opening the smaller the quantity that passes; so that, in regulating taps, we found, in general, that diminishing the aperture threw more strength into the aperture that was left open. But, as already stated, when even this does not answer, one valve may be shut altogether for a short time; and when once it gets the current it will not be easily robbed. A very little attention when lighting the fires will manage all that; in fact, with two houses merely, it will seldom want any regulating at all. We do not understand exactly what you mean by shutting the valves; but we must warn you against shutting both flow-valves when you have a brisk fire on, if you do not wish the valves to be injured, or the boiler to send itself and the stoke-hole into the air. Were you near us we could take you to a small boiler that heats two houses—one facing the south and the other facing the north, behind it. The pipes in the latter are more than two feet below the pipes in the former. Each house is furnished with valves to heat one or both at will. The valve on the north side of the house was shut. The heat was beyond all bounds on the south side, and, to lessen it, the stoker turned the valve to prevent circulation, and never moved the valve in the north house. The consequence was, that both brass valves were so injured that neither now acts as it should do; and had they not given way, the boiler must have burst, and thrown down all the brickwork. Hot water is the simplest mode of heating imaginable; but the simplicities must be attended to. What can look more simple than keeping the pipes and supply-cistern stored with water? and yet most gardeners find that these simplicities want looking after; or the stoker may have plenty of fire, and have no circulation of hot water.

4. You have no need to trouble yourself about your flow and return pipes being so near each other. The wood between them, unless it would tend to hold them securely, we should care nothing at all about. In fact, we should prefer the pipes being side by side, instead of being over each other at all. Suppose that your flow-pipe rose to the farther end an inch and a half—

say in forty-feet; was joined there by a semicircular joint to the return-pipe, and that declined as much, or an inch more, to the other end, and the pipes were placed side by side, we are quite sure the two pipes would be more equally heated than by placing them one above each other, whatever the distance between them.

5. Any boiler will burn coke well. The three best we think would be, a conical one of Rogers's; a tubular one of Weeks's, or Ormson's; and a retort of Thompson's. The two first should be fed from the top. After all, more depends on the stoker, and the regulating of the damper, furnace, and ashpit door, than the mere form of the boiler. What exposes most surface to the fire is generally best.]

ACCLIMATISING PLANTS.

"Having read in your valuable journal, some weeks past, a very interesting account of the acclimatising our rather-tender greenhouse plants in the open air, throughout the winter, in the exposed situation of Forest Hill, at Mr. Mongredien's garden, I shall feel particularly grateful for some hints on this subject; as I am anxious for want of indoor space, and having only a very small greenhouse to store away, during the winter, all my rare varieties of Camellias and Neriums. My garden has a north-west aspect. Could these plants, by being sunk in their pots now in the garden, be able to withstand our severe frosts near town without any protection? [No, not in pots.] I sadly fear not; but should like to know how that result has been attained at Forest Hill in a very exposed north aspect, which Mr. Beaton, I think, compares to the Calton Hill in Edinburgh. I shall feel greatly indebted for any rules for obtaining such happy results, as my plants are stifled up eight months in the year indoors, fearing to turn them out until the end of May. May I also trouble you to inform me when *Azalea Indica* should be put out? [When done blooming.] And should it be placed in the shade like Camellias? [Yes, for two months.]—AN OLD SUBSCRIBER.

[There is not such a thing as acclimatising plants. If the nature of a plant is not suited to our climate, all the ingenuity of man will never alter it to the end of time. Our fathers kept plants under glass, which we find hardy enough now; and we protect some plants now which will be found to be equally hardy by-and-by. Both we and our fathers, however, added nothing to the hardiness of these plants: quite the contrary. Our mode of culture, in every instance, only made them less able to stand our climate. Therefore nothing is to be taught on the subject of acclimatising, save that of crossing plants which are not quite hardy with those that are so; and then to experiment on the seedlings, so as to find out if all or any of them are able to resist our winters, and of that subject we have never lost sight. Camellias, as far as is known, are as hardy as Laurels, but their flowers do no good out of doors; and many of the Chinese *Azaleas* are nearly as hardy, with the same drawback.]

NOTES ON SOME BULBS.

"I must beg for a root of the blue wild Anemone when the time comes. I thought it a myth. That is what comes of fancying one's self too knowing. My meaning was to ask if any one now living had seen the double white Hepatica. I know the book account of it, and other marvels, by heart. Our ancestors understood bulb growing, and the production of double flowers, far better than we. The gorgeous flora of the present day was then unknown, and they diligently and patiently made the best of what they had. Many doubles are mentioned which are now lost. *Oporanthus luteus* is described and figured, and the raising of it from seed treated, as a matter of course. I never saw it seed but once (this spring); but a slug destroyed the seed-vessel. Mr. A. Henderson has, or had, a gem of an *Ornithogalum*, which is unknown to me. It was labelled *Zephyranthes candida*. Has your bulbophilite correspondent the beautiful *Allium azureum*? It was in the country this year, but is extremely scarce."—AMELLUS.

[The blue *Anemone Apennina* is very much at your service. No one has ever described the seeds of *Oporanthus*; and probably no one living has seen it in seed under cultivation. The present battle fields in Italy are the places to see it in seed. It was the *Narcissus autumnalis major* of old Clusius. The labels were changed by some means, for no one would mistake a *Zephyranthes* for an *Allium*. The blue *Allium* grows wild in abundance with the blue *Ixiolirion montanum*, where *Abies nord-*

maniana fills up the gorges on the Altai Mountains. We did not know it was in England. The botanic gardener at Nitkita, in the Crimea, could send us the three by the same conveyance; or the Russian Embassy in London could procure them in any quantity through inspectors of mines on the Altai range. The Russians are a clanish people; and no plant or seed, from the Ural Mountains to the farthest extremities of Siberia, but some one of these mine inspectors could hunt out, and they are in constant communication with the head quarters, St. Petersburg. *Allium pulchellum*, a violet blue, is also a Russian plant.]

PROPAGATION OF PLATYTERIUM GRANDE.

"'C. M.' has a Stag's-horn Fern, *Platyterium grande*, which has thrown out a frond straight from the plant, instead of growing round the plant in the usual manner. She wishes to know if it is a new plant, and should be taken away; or if it is merely a fertile frond. She does not understand how this particular Fern is propagated."

[The broad flat fronds of *Platyterium grande* are a wonderful provision of Nature to protect the roots from the sun and drought; and also serve, when they become old and decay, to feed the plant. These are the unfertile fronds: they never produce spores, or seed-cases. The fertile fronds spring from the centre of these spreading fronds: hence the one "C. M." alludes to is a fertile frond. This species very rarely produces an offset. It is usually increased by seed, which should be sown on damp clean peat, covered with a bell-glass, and kept moderately moist. Take care, however, to sow seed, and not empty spore-cases. Your frond will probably produce seed this season. There is a species named *Platyterium stemmaria*, which is viviparous—that is, it sends forth young plants under the unfertile fronds in abundance, as may be seen at Sir John Cathcart's, Cooper's Hill, under the management of Mr. Dods. The old plant was growing last summer in a pot with holes round the sides; and the young plants were pushing through the holes in a manner exceedingly curious.]

VARIETIES.

WILD AND DOMESTIC FOWLS IN SIBERIA. — The men of Tobolsk engage with much heartiness in killing the wild fowl, which is so numerous in the neighbourhood, that at this season partridges and heath-cock are ordinary food with all classes of the inhabitants. The large ptarmigan, also, becomes in the depth of winter extremely plentiful in the immediate vicinity of the town. But they, as well as the German pheasant (*Tetrao tetrix*), and the cock of the woods (*T. urogallus*), are brought at all seasons from the country of the Ostyaks further north. The universal enjoyment of these and various other kinds of food, which in Europe are reserved for the most part for the favourites of fortune, cannot fail to remind one of the opinion asserted by Paulus Jovius, who, already in the middle of the sixteenth century, speaking of what he had himself witnessed, maintained that the Russian people lived not so much in elaborate elegance as in the richest superfluity; for their tables were always supplied, and at the most trifling cost, with kinds of food which none but the most luxurious and prodigal among us ever thought of procuring. What he then said of Russia in reference to game, which, in western Europe at that time, appears to have been already the exclusive property of privileged grandees, as well as to the abundance of fine fish in the rivers, is a fair picture of the ordinary resources of Tobolsk at the present day. Swan's flesh is rarely eaten in Tobolsk, unless salted, and on that account it is but little esteemed. It is obtained in this state from the Russian settlers along the Irkutsk and Obi, who, in autumn, stretch nets on the side of the stream, in places where they have cleared away the wood, and then, rowing down in foggy weather, they drive the swans and flocks of other water-fowl into these snares. They throw the enormous stock of game thus procured into pits carelessly dug near the banks of the river, and have recourse to it in time of want; not being over nice if it be somewhat tainted. A few who are more stirring and thrifty salt the palatable food, and carry it to the towns at some distance. In like manner the eggs of several kinds of duck are sold in Tobolsk for a mere trifle, yet not in such abundance as totally to supplant domestic poultry; for the latter are taken great care of during the winter, and are often kept even in the warmed rooms of the house. For preserving the eggs of wild fowl, the people

here want the effectual means which the Russians on the Eastern Sea derive from the whale fat.—(*Erman's Travels in Siberia*.)

THE ALOE A CURE FOR SCALDS AND BURNS.—M. l'Abbé Moigno recommends that the Aloe of any variety, but particularly the Soccotrina, should be cultivated as a specific against the effects of burns and scalds. M. Berthoud states to the *Patrie* that M. Simon, gardener at Belleville, having scalded his foot very severely, took a leaf from an Aloe, split it down the middle, and applied the inside on the wound. To his great surprise the green juice of the leaf turned purple, and the pain disappeared as if by enchantment. M. Lemaire, the Professor of Botany at Gand, obtained the same result in a similar case; and M. Houillet, Director of the hothouses of the Museum, met with equal success in the case of a workman who had been dreadfully scalded with steam.—(*American Gardener's Monthly*.)

TO CORRESPONDENTS.

HOSE FOR LIQUID MANURE (R).—Vulcanised Indian-rubber tubing is the most flexible. Gutta Percha is the strongest, but very stiff and unmanageable. You do not say the purpose it is for.

OXIDE OF IRON IN WATER (Northumbrian Subscriber).—It is injurious to plants. Lime added to the water may remove it. We doubt the conclusion that it causes the roots of the plants to decay, and their leaves to spot. Excessive watering is a more probable cause.

PEACH AND NECTARINE TREES FAILING (Young Gardener).—As we know nothing about the pruning and protection given, we cannot divine the cause of failure. The hot sunshine and easterly winds of the present season greatly promote the aphides you mention. Tobacco water will destroy them. Cropping "the border every year," is bad gardening. The soil, being "sandy and light," would be improved by the addition of strong loam and lime rubbish; by mulching the surface, and giving liquid manure in summer.

VINE MILDEW (T. Dodds).—There is no remedy but dusting the leaves thoroughly with flowers of sulphur. Paint the stems also with the sulphur, mixed into a cream with clay and water. Sprinkle sulphur also over the surface of the borders. Having the air thus constantly impregnated with the fume of the sulphur is the best remedy. The leaves you mention would not "increase the evil." Do not burn sulphur in the house, for that would destroy everything.

LADY FLORICULTURISTS (A Subscriber).—We do not know "any lady who follows floriculture as a trade." Painting flower-pots is of no service to the plants in them; but the painting them of a dark stone colour greatly improves their appearance. Cactuses are not improved by liquid manure.

BLISTERED PEACH LEAVES (An Anxious One).—The cause is believed to be disorganization by night frosts. Pick off all the blistered leaves.

FARMYARD MANURE (A).—The manure of pigs and cows is liable, late in the summer, to contain undigested seeds of weeds. It certainly does not foster slugs. We should prefer the mixture of pig, cow, fowl, and horse dung to the last-named alone.

DIGGING (G. W.).—The writer of the papers on "Science of Gardening," has given all the information he possesses on the force required to dig. M. Schubler's experiments have not been published in a separate form in this country.

CAMELLIA'S YOUNG LEAVES YELLOW—SCALE INSECT (Amy Flower).—Give it a little liquid manure, and plenty of air and light. The leaves will soon become green. Remove the Acacia from the conservatory, or the scale insects will pass on to the other plants. Destroy the insects by dipping the Acacia into the following mixture:—Water, 4 gallons; soft soap, 4 lb.; sulphur, 1 lb.; black Pepper, 4 oz.; boil together for twenty minutes, and use when cool. Neither White Broom nor Heaths, should be cut down after flowering.

WALTONIAN CASES.—Mr. Hibberd has sent us copies of the woodcuts employed in one of the works he quoted, and they are certainly not copied from that given by us in *THE COTTAGE GARDENER*, Vol. XV., pp. 430, 431. The drawings and description there given were the first and the fullest published; and Mr. Beaton was the first and the most influential advocate of the Case. We, therefore, agree with him in thinking that in giving a list of the works which have illustrated the Waltonian Case, it was not gratuitous to omit either Mr. Beaton's name, or that of *THE COTTAGE GARDENER*.

SPIRGULA PILIFERA (J. Perkins).—We shall soon have more experience as to the best mode of establishing it. In the meantime the best information we can give is this extract from Messrs. E. G. Henderson and Son's catalogue:—"The seed may be sown either in or out of pots in the usual method observed for fine seeds, with a slight but uniform covering of soil, and placed within either a frame, cool pit, or greenhouse, using the usual precaution of shading the seed-pans from intense sunlight daily for a few hours, until well germinated; after which, it may either be replanted in stores of ten to fifty plants within dishes or large pots, or otherwise planted out in a rather shady border of the open ground for a few weeks, and ultimately transplanted upon the prepared lawn-surface in two or three plants, within one inch or more of each other; and such little plant-groups may be formed at a distance of six, nine, or twelve inches apart; in such positions the growths will progressively meet and form the rich and beautiful surface now described. It is also admirably adapted for picturesque green tufts and edgings on avenue lines and borders, for grouping the front spaces of massive rockwork, and surfacing partially raised mounds around classic fountains and basins or artistic columns, where grass is unavailable for mowing, and equally telling for cultivation in larger vases, in alternate effect with the silvery sheen of the beautiful *Cerastium tomentosum*, on terrace verges, and architectural approaches. *Spirgula pilifera* is found to succeed admirably upon any retentive, close-bodied loam, or heavy gravelly soil on a cool under-strata, the surface being rendered firm, with the top strata of prepared soil for planting in. After the cold spring months the seed may be safely sown on open beds, of east or north aspect, in such positions where the surface soil is preserved from dry and parching winds, and easily maintained with uniform

moisture, and from whence the seedling plants may be thinned out for transplanting to a more open situation upon large store beds, where, after being well established to the number required, they may, finally, be planted on the permanent spaces required, close in proportion to the aggregate number of plants on hand. The closer the store of plants admits of the seedlings being planted, the sooner will a rich unbroken surface of verdure be formed; and the more uniformly thin the seed is sown, the sooner will the young plants attain a uniform vigour, and more easily and safely admit of transplanting."

RAISING SEEDLING VERBENAS (A. A.).—Crossing Verbenas does no good, the kinds vary too much already without crossing; but if you must cross, the operation is very tedious, because the pistil is within the tube, and so is the pollen; and to make sure of a genuine cross, the flower must first be pulled off entirely, when the mother will be in danger from the exposure; or, secondly, if you slit the limb and tube of the flower to get out the anthers, the two pieces will so flap together as to endanger the stile and pistil. The surest way is, to put another flower on, from which the anthers were taken. A Polyanthus flower is just the same thing to cross, only easier, from being so much larger. They are only those who do not understand the thing who talk about bees inoculating Verbenas or Polyanthus. Bees can do nothing of the sort, but ants might. All the seedling Verbenas are natural sports, and nothing more; and all the Dahlias are just the same, and crossing does no more good with the one more than with the other. As to rearing Verbena seed, it is the same process exactly as rearing Mignonette, only very much easier, if you have room, frames, and tact for management. Verbena seeds may be sown in February, and brought forward to bedding-out time, then to plant out the seedlings. But it is easier, and as good, to sow the seeds at once in the open ground, about the end of April, and to prick out the seedlings and transplant them exactly on the same plant as young Lettuces.

DASYLIRION ACROTRICHUM (A Subscriber).—Your new plant is from Mexico. It requires exactly the same soil and the same kind of winter treatment as *Tom Thumb* Geraniums. It looks like a long and narrow-leaved Yucca. The leaves are sharply toothed on both edges. After you get it big enough to fill a ten-inch pot, it will only want a shift once in ten years. We certainly mentioned it as in bloom last year at Kingston, or intended doing so. The flower-stalk rises from the centre to six, seven, or ten feet, and it blooms all the way up; but, like the flower of the Aloe, it is more to talk of than to look at.

PINCHING THE SHOOTS OF ANNUALS (J. J.).—Mignonette gives the best example of the effects of pinching off the long shoots and the seed-pods, to keep it bushy and in bloom the whole season; and *Clarkia* the best to show that pinching back spoils it. The Silenes, *Saponaria calabrica*, Virginian Stocks, *Sanvitalia procumbens*, *Lobelia gracilis*, and all the annual Lupins do better by being constantly pinched back; but Gillias, Clarkias, Poppies, Goodetias, Dianthus, China Asters, Nemophilas, Portulacaeas, and such habited kinds are soon spoiled by pinching back.

SPIRGULA PILIFERA (W. Playford).—The old turf must be taken off before the seedlings are planted. See what we have said in answer to another correspondent.

VARIOUS (An Eighteen-months' Subscriber).—If you mean by the Chili Pine, *Araucaria imbricata*, it is natural to it to cast its bottom branches in dry soil, and in certain localities, but that does not hurt it much. The early growth, or young tops of the *Holly*, have been caught by the late cold easterly winds and frost; but, if that is all, they will soon recover now. June and July are a good time to put in cuttings of *Double Gorse*, and on to September. They should have a hand-glass over them on a shady border, and they root very easily. It is beautiful all over the banks at the Crystal Palace now.

FLEMING'S SALTING MACHINE (Evesham).—It is a most effective destroyer of weeds. Two pounds of common salt are mixed with one gallon of water, and the solution, when in a boiling state, is applied to the walks. One, or at most two dressings, will suffice for the season. The beautiful condition of the walks and drives at Trentham fully illustrate the efficiency of this useful machine. It is manufactured by Messrs. Shanks & Son, of Arbroath.

NAMES OF FERNS (Truth).—1 and 3, forms of *Polystichum angulare*; 2, *Lastrea Filix-mas*; 4, *Polystichum aculeatum*; 5, *Lastrea Filix-mas*, v. *palaeacea*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

JUNE 1st, 2nd, and 3rd, 1859. BATH AND WEST OF ENGLAND. At Barnstaple, Devon. *Director*, S. Pitman, Esq., Rumwell Lodge, Taunton. Entries close May 1st.

JUNE 6th, 7th, and 8th, 1859. GLASGOW. *Sec.*, Robert McCowan, 17, Gordon Street, Glasgow.

JUNE 16th. ESSEX. *Sec.*, Robert Emson, Halstead, Essex. Entries close June 1st.

JULY 1st, 2nd, 4th, and 5th. SHEFFIELD. *Sec.*, Wm. H. Dawson, Sheffield. Entries close the 15th of June.

JULY 21st. PRESCOT. *Sec.*, Mr. James Beesley, Prescott.

AUGUST 27th. HALIFAX. *Sec.*, William Irvine, Holmfild, Ovenden, near Halifax.

AUGUST 29th, 30th, 31st, and SEPTEMBER 1st. CRYSTAL PALACE. Poultry, Pigeons, and Rabbits. *Sec.*, William Houghton.

SEPTEMBER 22nd. BRIDGNORTH. *Sec.*, Richard Taylor, Bridgnorth.

OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. *Sec.*, Geo. Griffiths, 7, St. Swithin Street, Worcester.

RUN FOR CHICKENS—CRYSTAL PALACE SHOW.

If this year you are fortunate enough to have any grass to mow, recollect that a week after the hay is carried the grass is the best run your chickens can have; it is fresh and healthy for them.

Now, when you have many chickens about, let the rips in which the hens are confined be as far apart as possible.

Remove the late-hatched chickens from their elder brethren that now care for themselves; they are old enough to benefit by the warm sun and genial weather. With chickens as with children, the youngest require the most care. See that they never lack water, and let it be fresh. It may be in zinc or earthenware vessels, but not in wooden ones. Water heated with the sun is bad; put the drinking vessels in the shade. Every spot that is moistened now becomes a little oasis for chickens; when, therefore, the water is changed, let the refuse be scattered on the grass. Do not replenish the vessels, but empty and fill them again. You may safely diminish the stimulants given to the young broods.

If you are sending to market, fast the chickens all the previous day, kill them at night, and let them lie in an out-house, or a larder, all night, that they may get thoroughly cold. Pack them in the morning. Look out for falling combs in Spanish cocks, four claws in Dorkings, humped backs in Polands, single combs in Hamburgs, and foul feathers in Game, and slay mercilessly. It is a profit if they answer no other purpose than to manure a tree or a flower.

We are happy to be able to announce to our readers that the Crystal Palace Summer Show will be holden on the 29th, 30th, and 31st of August, and the 1st of September. It has been made later, because last year many exhibitors were not ready with their chickens. We shall very soon give an epitome of the prize sheet, and show how anxious the Directors are to meet the requirements and wishes of amateurs. We have always felt that this Show has peculiar claims on the public. The Poultry Show is added to every other attraction. It is essentially a place where amateurs can take their families. The Summer Show is more for their pleasure than the profit of the Company; and if both entries and attendance are numerous, the Directors and our indomitable and able friend Mr. Houghton receive only their deserts.

POULTRY FRAUDS AND THEIR PREVENTION.

I AM induced to write on this subject, from having lately heard of a party in the north of England (I suppose he cannot be a subscriber to *THE COTTAGE GARDENER*, else he would have seen sufficient warnings on the subject), who has been cheated to a large extent in a transaction concerning some Pigeons by one of the Manchester gentry. This Manchester rascal bought Pigeons of the person to whom I allude to the amount of £15 or £16, induced him to send them to him, without payment for them. The result was, that when applied to for the money, it was not forthcoming; and, furthermore, the swindler had decamped with his booty. You can, perhaps, imagine the chagrin of the swindled. Now, this state of things should be put a stop to, if possible; and the remedy I have to propose, is, I think, a very simple and an inexpensive one, and, I think, would prove efficacious.

The party to whom I refer has exhibited at several Poultry Shows, and has also won several prizes; and I suspect this to be the reason that he has been duped, as, no doubt, his name has been seen as an exhibitor by the scoundrel. If the Secretaries of the different Shows could be induced just to print a number of slips of paper (and enclose one with the direction labels of each exhibitor at each Show), cautioning every exhibitor against all unknown applicants for their birds, and also warning them not to part with their birds to such applicants without receiving prepayment for them, I fancy this would put an effectual stop to all such clever strokes of business; at any rate, if any of your subscribers can suggest a better remedy than this they would confer a boon worth receiving on all interested.—GEORGE W. BOOTHBY.

[The "Pigeon Book" will be published in a few weeks. Twenty stamps will insure its being sent by post.]

BEVERLEY AND EAST RIDING OF YORKSHIRE POULTRY SHOW.

THIS Exhibition took place on Wednesday and Thursday, the 25th and 26th inst. The following were the awards:—

SPANISH.—First, J. K. Fowler, Aylesbury. Second, T. T. Pierson, M.D., Bridlington Quay. Highly Commended, H. Yardley, Birmingham; J. H. Craigie, the Woodlands, Chigwell, Essex. Commended, F. Watkins, Walkley, Sheffield. (A superior class.)

DORKINGS.—First, P. Barnard, Bigby, Brigg. Second, Rev. G. Hustler, Appleton, Tadcaster. Highly Commended, S. Pickard, Dintear House, near Wakefield; H. W. B. Berwick, Helmsley; M. Hunter, Green Ham-

merton Hall, near York; T. Tate, Driffield; Rev. J. G. A. Baker, Old Warden, Bedfordshire. Commended, W. E. Easton, Hull; H. W. B. Berwick, Helmsley; S. Burn, Whitby. (The class throughout very good.)

COCHIN-CHINA (Buff, Lemon, and Cinnamon).—First, J. K. Fowler, Aylesbury. Second, T. H. Barker, Hovingham, York. Highly Commended, Miss V. W. Musgrave, Aughton; J. T. Sigston, Surgeon, Welburn; H. Tomlinson, Birmingham.

COCHIN-CHINA (any other variety).—First, W. Dawson, Hopton, Mirfield. Second, D. B. Turner, Hull. Highly Commended, E. Spink, Hull; Miss V. W. Musgrave, Aughton.

BRAHMA POOTRA (any shade).—First prize withheld. Second, J. Dixon.

GAME (Black-breasted and other Reds).—First and Silver Medal, S. Bielby, Beverley. Second and Third, H. Adams, Beverley. Highly Commended, H. Adams, Beverley; M. Hunter, Green Hammerton Hall; D. Gibbs, jun., Beverley; A. Sutherland, Burnley. Commended, W. Backhouse, Etton; G. Brigham, jun., Beverley.

GAME (Duck wing and other Greys).—First, J. H. Smith, Skelton Grange, near York. Second, H. Adams, Beverley. Highly Commended, H. Adams, Beverley; J. S. Jordan, Driffield; L. J. Crossley, Manor Heath, Halifax.

GAME (any other variety).—First, W. Dawson, Selly Oak, Birmingham. Second, Miss H. Graham, Burton Agnes. Third, H. Adams, Beverley. Commended, Bird and Beldon, Eccleshill Moor, Bradford.

HAMBURGS (Golden-pencilled).—First, R. Blythe, Birmingham. Second, Bird and Beldon, Eccleshill Moor, Bradford. Commended, G. S. Sainsbury, Rowde, near Devizes.

HAMBURGS (Silver-pencilled).—First, J. Dixon, North Park, Bradford. Second, T. Keable, Rowde Field, Devizes. Commended, J. Falkiner, Hunmanby.

HAMBURGS (Golden-spangled).—First, W. R. Lane, Birmingham. Second, H. Adams, Beverley. Highly Commended, H. W. B. Berwick, Helmsley; H. Carter, Upperthong, near Holmfirth; Rev. J. C. Raw, Ainderby Vicarage; J. Dixon, North Park, Bradford. (A superior class.)

HAMBURGS (Silver-spangled).—First, H. Carter, Upperthong, near Holmfirth. Second, J. Dixon, North Park, Bradford. Highly Commended, Mrs. Foster, Molescroft Cottage; S. Bielby, Beverley; Bird and Beldon, Eccleshill Moor, Bradford.

POLISH (Black with White Crests).—First, J. Dixon, North Park, Bradford. Second, G. Ray, Ivy Cottage, Minstead, Hants. Highly Commended, P. Barnard, Bigby, Brigg.

POLISH (any other variety).—First and Second, J. Dixon, Bradford. Highly Commended, J. Ashton, Hull.

MALAYS.—First, C. Ballance, Taunton. Second, W. Rogers, Woodbridge. Highly Commended, C. Ballance, Taunton.

ANY OTHER PURE OR DISTINCT BREED NOT PREVIOUSLY CLASSED.—First, Miss Robinson, Mansfield (Blue Andalusian). Second, S. Holloway, Hull (Silky). Highly Commended, F. Key, Beverley (Sultan). Commended, W. Dawson, Mirfield (Silky or Japanese).

ANY FARMYARD CROSS.—First, R. Robson, Arram. Second, G. Robinson, North Frodingham. Third, H. Dickens, Leckonfield Park. Fourth, J. Price, Londonderry, Bedale.

BANTAMS (Gold and Silver-laced).—First, J. Dixon, North Park. Second, H. Forster, Markyate Street, near Dunstable. Highly Commended, A. Elliott, Nottingham. Commended, D. B. Turner, Hull.

BANTAMS (Black or White).—First, Bird and Beldon, Eccleshill Moor, Bradford. Second, Mrs. Foster, Molescroft Cottage. Highly Commended, Master W. Laybourne, Beverley. Commended, Rev. F. Watson, Moulton Rectory, Norfolk.

BANTAMS (any other variety).—First, Miss M. K. Turner, Beverley. Second, G. Winter, New Village, Hesse Road. Highly Commended, Miss M. K. Turner, Beverley. Commended, R. Dring, Hull. (The class good.)

SPANISH COCK.—Prize, J. W. George, Beeston Podge.

DORKING COCK.—First, W. Burn, Whitby. Highly Commended, Rev. G. Hustler, Appleton, Tadcaster; P. Barnard, Esq., Bigby. Commended, Mrs. Watson, Beverley.

COCHIN-CHINA COCK.—First, Rev. G. Hustler, Appleton, Tadcaster. Commended, T. H. Barker, Hovingham, York; W. Dawson, Hopton, Mirfield.

GAME COCKS.—First, William Dawson, Birmingham. Second, H. M. Julian, Beverley. Third, F. Adams, Beverley. Highly Commended, J. Gawan, Beverley; J. Taylor, jun., Burton Agnes; R. Stephenson, Beverley. Commended, H. Adams, Beverley; J. Neighbour, Garton; J. Ward, Beverley; R. Ellerington, Etton; M. Hunter, Green Hammerton Hall; Mrs. R. Tate, Driffield.

COCKS (Gold and Silver-pencilled).—First, J. W. George, Beeston Podge. Second, Bird and Beldon, Eccleshill Moor.

HAMBURGH COCKS (Gold and Silver-spangled).—First, Miss Adams, Beverley. Second, Bird and Beldon, Eccleshill Moor.

MALAY COCK.—Prize, C. Ballance, Taunton.

COCKS (of any Farmyard Cross).—First, W. Charter, Driffield. Second, T. Small, Hull.

BANTAM COCK (Gold or Silver-laced).—Prize withheld.

BANTAM COCK (Black or White).—First, Miss M. K. Turner, Beverley. Highly Commended, S. Pickard, Dintear House. Commended, Mrs. E. Dunsdale, North Frodingham.

BANTAM COCK (any other variety).—First and Medal, Miss M. K. Turner, Beverley. Highly Commended, Miss M. K. Turner, Beverley; J. E. Maplebeck, Birmingham; J. H. Craigie, the Woodlands, Chigwell. Commended, J. H. Craigie, the Woodlands, Chigwell.

GANDER AND GOOSE.—First, J. Price, Londonderry, Bedale. Second, J. K. Fowler, Aylesbury. Third, Mrs. T. Crompton, Bridlington.

TURKEYS.—First, W. Dolby, jun., Syeton Hall (Cambridgeshire). Second, J. Price, Londonderry, Bedale (American). Third, Mrs. R. Raiton, Middleton (Black). Highly Commended, R. Stephenson, Hull Bridge.

GUINEA FOWLS.—First, W. H. Richardson, Hull. Second, J. Price, Londonderry, Bedale. Commended, J. Taylor, sen., Burton Agnes; J. Branton, jun., Middleton.

DUCKS (Aylesbury).—First and Second, J. K. Fowler, Aylesbury. Commended, J. Price, Londonderry, Bedale.

DUCKS (Rouen).—First, J. Price, Londonderry, Bedale. Second, T. H. Barker, Hovingham, York.

ANY OTHER VARIETY OR CROSS.—First, W. Dawson, Mirfield (Shell or Burrow). Second, Mrs. G. Holmes, Beverley (Black East Indian). Third, J. Dixon, Bradford (Grey Call Ducks). Commended, S. Burn, Whitby (Black East Indian).

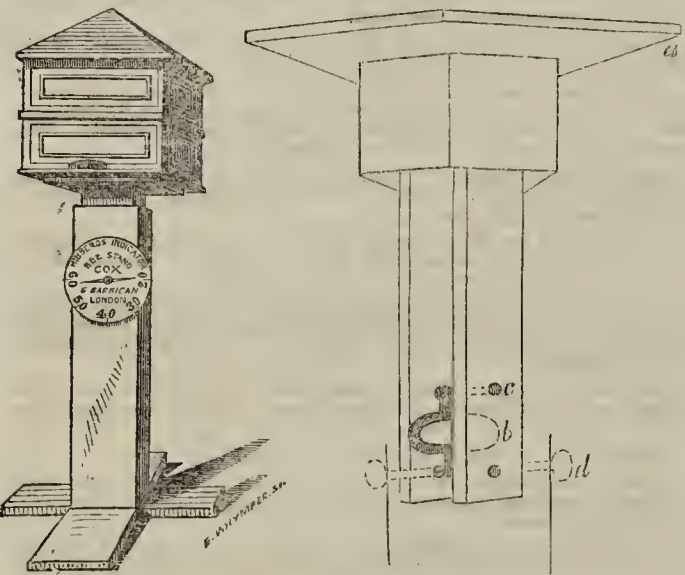
SINGLE GAME COCK (any variety).—First and Second, A. Sutherland, Burnley. Third, S. Matthews, Stowmarket, Suffolk. Fourth, W. Catterson, Beverley. Highly Commended, R. Swift, Southwell; H. Adams, Beverley; H. F. Mosey, Beverley; J. Clayton, Kineton Park, Work-sop; H. Turner, Beverley; H. Mason, Drighlington; Mrs. R. Tate, Driffield. Commended, W. Rodgers, Woodbridge. (An excellent competition.)

EXTRA STOCK.—Prize, S. Holloway, Hull (Silky Cock). Prize, J. Branton, jun., Middleton (Peacock and Peahen). Prize, Miss Reynard, Beverley (Andalusian Cock). Prize, S. Holloway, Hull.

The Judges were E. Hewitt, Esq., Birmingham, and F. Ferguson, Esq., Walkington. We shall publish our commentary next week.

INDICATOR BEE-STAND.

My indicator bee-stand gave me so much amusement last year, that I am induced to call attention to it once more in the pages of THE COTTAGE GARDENER. A contrivance of this kind may be made and sold, but it is better to put people in the way of making it for themselves; and this I hope to do with the help of a woodcut and a short description.



In the description which appeared this time last year (COTTAGE GARDENER, May 18, page 102), the use of a spiral spring was recommended. This I afterwards found not so trustworthy as one made in the form of an ellipse; which is the plan now adopted by Mr. Cox, of Barbican, London, who makes them for public sale. Another improvement is the introduction of an index to represent dead weight; so that the bee-keeper can at any time subtract that dead weight from the gross weight, and thus determine, by the difference, the amount of accumulated produce. The stand I have before me for the purpose of description is one which I used for a new swarm in a pair of Stewarton boxes last year. It is three feet high. The exterior coil, or hollow pillar, is of inch deal, five inches and a half square. The construction represented in the diagram is made to drop into it; and the square block under the table *a* prevents any undue pressure on the spring, by receiving any weight beyond that necessary to press the construction to the full strength of the spring: in other words, if you put on any weight over and above what the spring is intended to carry, the block sinks on to the top of the pillar and can go no farther. The top plate on table *a* is to receive the floorboard, with the hive on it. It is of

inch deal, one foot square. The woodwork in which the spring is fixed is open, with the spring between the two boards. The spring *b* is fixed to it by means of an iron bolt *c*; and when this part of the invention is lowered into the pillar, the lower side of the spring is fixed to the pillar by means of another bolt *d*, on which the spring presses. The spring is japanned, and of a proper temper to bear a pressure of from twenty to sixty or eighty pounds. To render the working of the spring visible on a dial plate, a simple piece of ratchet work is attached to the under side of the table *a*—say an upright slip of flat metal, working in a groove on the front of the pillar; the lower part cut so as to fit the notches in a brass wheel at the back of the dial plate, to which the indicator index is attached. Of course, as the table *a* descends with the increasing weight of the hive, the slip of metal goes down with it, works the wheel at the back of the dial plate, and so indicates on the face of the dial the gross weight of the hive and its colony. To make sure of correct indications the spring should be of a first-rate character; and the adjustment of its action to the ratchet-work should be accomplished, in the first instance, by means of weights to the utmost nicety. I enjoin Mr. Cox not to send one out without testing them himself in such a way; because such a thing as this is worse than useless if it cannot be depended on. And I advise all who purchase or make them to test them well before making ready for apianian uses.

As I take no commission on the sale of these by Mr. Cox, I expect him to show and explain the affair to anybody who chooses to call on him; and I know that he will do so, as a man possessed of a soul above buttons.

In illustration of the interest arising out of the use of an indicator, I give the following extracts from my journal of last year. A swarm was hived into a pair of Stewarton boxes on the 16th of May, and at once placed on the indicator. The gross weight, with a stone on the top to prevent the hive being blown over, was twenty-three pounds. On the 1st of June the gross weight had increased to thirty-four pounds. After this the stone was removed, and the dead weight remained at eighteen pounds throughout the remainder of the season.

The following entries are those which appear to me to possess the most interest:—

	Dead Weight.	Gross Weight.	Produce.
	lbs.	lbs.	lbs.
June 7	18	35½	17½
" 15	18	38	20
" 23	18	40	22
" 30	18	41	23
July 5	18	44	26
" 6	18	45	27
" 13	18	48	30
" 14	18	49	31
" 15	18	50½	32½
" 16	18	50	32
" 19	18	49½	31½

As to this particular colony, then, the increase of store ceased on the 15th of July; and from that day the indicator worked the other way, making evident to the eyesight the fact often insisted on by Taylor, Payne, and other authorities, that the season of increase is but of short duration.

I have not the least doubt that, if some of the scientific bee-keepers who correspond in THE COTTAGE GARDENER were to try my indicator for a season, some simpler and cheaper contrivance to accomplish the same object would be devised. Had I time I would try stout suspenders of vulcanised India-rubber, which were suggested to me by Mr. Edwards, of Birmingham; and also a plunger to work in mercury. Will somebody take the trouble, with a view to produce a contrivance that may be got up for a few shillings, and at the same time be sufficiently respectable as not to prove an eyesore in the bee-house, where everything should be as neat as the work of the people into whose affairs we pry with such unwearying curiosity?—SHIRLEY HIBBERD.


LONDON MARKETS.—MAY 30.

POULTRY.

The trade is improving, and in many articles there is a trifling advance in price. This may, however, be considered the dearest time of the year for poultry.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls (couple)	6	6 to 7	0	Turkeys	0 0 to 0 0
Smaller ditto	5	0	5	Pigeons	0 10 " 0 11
Chickens	2	6 " 4	0	Guinea Fowls	0 0 " 0 0
Goslings	5	0 " 6	0	Rabbits	1 4 " 1 5
Ducklings	2	6 " 3	6	Wild ditto	0 8 " 0 9

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	JUNE 7—13, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon R. and S.	Moon's Age.	Clock after Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
7	Tu	<i>Goodia latifolia</i> .	30.097—29.951	74—48	N.E.	—	47 af 3	10 af 8	5 0		1 33	153
8	W	<i>Passerina grandiflora</i> .	29.870—29.816	76—56	N.E.	.03	46 3	11 8	19 0	7	1 22	159
9	Th	<i>Hiermaunia incisa</i> .	29.915—29.841	86—55	E.	—	46 3	12 8	32 0	8	1 11	160
10	F	<i>Banksia speciosa</i> .	29.990—29.938	87—56	E.	—	45 3	13 8	45 0	9	0 59	161
11	S	ST. BARNABAS.	29.982—29.921	82—44	S.E.	—	45 3	13 8	0 1	10	0 47	162
12	SUN	WHIT SUNDAY.	29.937—29.886	81—44	S.	—	45 3	14 8	18 1	11	0 35	163
13	M	WHIT MONDAY.	29.916—29.879	78—56	W.	.03	45 3	15 8	42 1	12	0 23	164

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 73.5° and 48.1°, respectively. The greatest heat, 90°, occurred on the 12th, in 1846; and the lowest cold, 31°, on the 12th, in 1837. During the period 122 days were fine, and on 192 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

THE principal part of the greenhouse plants may now be removed to an out-of-door situation, open to the morning sun, and protected from high winds, and be placed on some hard bottom through which the worms cannot get into the pots. The specimen plants that remain should be turned round from time to time, that they may not get one-sided; and allow them to have plenty of room on all sides. Also, the young plants intended for specimens should have their flower-buds picked off, to encourage their growth.

BALSAMS.—Encourage them by frequent shifts, and keep them in bottom heat, and near the glass. The prematurely-formed flower-buds to be picked off, as the plants should attain a considerable size before they are allowed to bloom.

CALCEOLARIAS.—The most critical time is after the plants have flowered; if allowed to produce seed, they generally die off—Nature having completed her task. When the bloom begins to fall, cut the plants down, and repot into a larger size; place them in a cold frame facing the east, the lights on during the day, with air, and entirely off during the night, unless in rainy weather, as the night dews are highly beneficial. Treated thus the plants will soon produce new shoots, which must be taken off and pricked out into small pots in a very open soil, and placed in a very gentle bottom heat to strike. When rooted, to be shifted into pots of a larger size.

CINERARIAS.—The plants that have bloomed through the season to be cut down, turned out of their pots, and to have at least half the old soil removed from their roots. Prepare a piece of ground, in a sheltered situation, with leaf mould or rotten dung and sand, in which the Cinerarias are to be planted; one inch below the level of the soil, in rows fifteen inches apart and one foot apart in the row. When planted, to be well watered.

CLIMBERS.—The *Passifloras*, *Mandevilla suaveolens*, *Tecoma jasminoides*, and other such climbers in the conservatory, will now be growing very freely, and will therefore require frequent attention to keep them in order. The young shoots may be allowed to grow in a natural manner, merely preventing them from getting too much entangled, or growing into masses.

FUCHSIAS.—When in a healthy-growing state they require an abundance of water and frequent syringings. Train them in the desired form, and pinch back all weak and straggling shoots.

HEATHS and NEW HOLLAND PLANTS.—Examine them very carefully, and be sure that they are in a proper state as to moisture. The young plants which are not blooming will do best if placed in a pit where they can be exposed or not, as may appear necessary. To lay a proper foundation for a good specimen it is necessary to stop and to train the shoots into form.

KALOSANTHES.—Train them neatly, increase the supply of water, and give them liquid manure occasionally.

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STOVE AND ORCHID-HOUSE.

Continue to shift the young and growing stock of stove plants. To harden the wood of the early-grown plants, for autumn or winter flowering, it is advisable to remove them to some cooler place, such as the shelves of the greenhouse. The baskets, in which the Stanhopeas will now be blooming, should be carefully examined to see that the buds, as they protrude, may not be injured by contact with the side. Many stove plants and Orchids in flower, if taken to a lateinery, or such intermediate house, will thus be prepared, in a short time, for removal to the conservatory during the summer.

CLIMBERS.—When the shrubby plants are large, the climbers hanging loosely give a sort of tropical character to the house; but, either hanging, or trained in wreaths or festoons, they require pruning and regulating, to prevent them becoming entangled, and, therefore, a confused mass of wood and foliage.

FORCING-HOUSES.

CHERRIES.—Give air night and day in fine weather.

FIGS.—When the ripest of the fruit is gathered, give the trees a good syringing overhead, to cleanse and refresh the leaves, and to keep down insects.

MELONS.—To be slightly shaded with a net, or a few pea-sticks, during bright sunshine in the middle of the day, to prevent the scorching of the leaves; for if such occurs, the fruit ripens prematurely, and is, in consequence, without flavour.

PEACHES.—When the fruit is ripening, give as much air as possible during the day, and when the nights are mild and warm leave the lights open. When the fruit in the succession-house is stoned, give a good watering to the roots, and syringe the trees frequently, as previously advised.

PINES.—Apply an abundance of moisture to the pathways of the fruiting-house during bright weather. Give plenty of air, but allow at the same time the thermometer to range from 90° to 95°. Shut up when the rays of the sun are getting partially off the house, and ply the syringe freely about the leaves and stems of the plants, and the surface of the plunging material. Air to be given an hour or two afterwards for the night.

VINES.—Keep thinning the berries and stopping the laterals as they advance, which, with syringing and giving air, is the principal work to be done.

WILLIAM KEANE.

BEDDING AND BEDDING PLANTS—GERANIUMS IN ROOMS—PROMOTING GROWTH IN VARIEGATED GERANIUMS.

THE newest of the bedding plants which were mentioned for the last year or two are the double *Petunias*, and the *Lobelia trigonicaulis*; and next to these, in importance to the operative propagators, would be a full and perfect knowledge, as a fact, that *Lobelia speciosa* comes quite true from seeds. As far as I went, everybody thought it would so come, yet every person doubted

the fact. "I wish I could make quite sure of it, and I would offer 30,000 plants of it at the beginning of May," was the common saying in the nurseries, when, to my own personal knowledge, little tufty plants of it, from last autumn cuttings, were worth just one shilling a-piece. From Ipswich and from Southampton it has been offered to send it up to London by the tens of thousands at planting-out time, and they had to be told that it would be "no go" there; that millions of seedlings were already up; and that we all believed, from the experience of the last two years, that they would prove quite true; but some how or other there seemed to be a hole in this our creed, which hole must be closed up in the heat of summer.

The practice at the Experimental Garden with doubtful seeds, or fancy surmises, is to get the means of testing them from two, three, or more sources, so as to have so many chances for reaching the truth. That plan has produced two kinds of seedling *speciosa* Lobelias this spring; and if they turn out both excelling, or one as good as the mother, and the other still better, or if both are not worth looking at, we shall make the result plainly known; and if ten thousand of our subscribers would be so good as to write up to say this or that of their seedling *speciosas*, the question would be confirmed in one month.

For the last three or four years the Horticultural Society has been sowing mischief among the Fellows, by sending out little sealed packets of seeds of *Lobelia gracilis* under the name of *ramosoides*. I had one each year, and every seed of them produced a *gracilis*, which is as different from *ramosoides* as that is from *Lobelia racemosoides* of some living beings.

But about *Lobelia trigonicaulis*. In case they may not have it at Chiswick, I shall be anxious to receive early reports of what it is in reality as an edger, as we missed it at planting-out time in the Experimental. The same with double Petunias. We never tried any but the old double white, which failed everywhere; so that there is a general shyness about planting them in beds, even if one had the kinds. One thing about Verbenas and double Petunias is, that the best judges of their merits can no more tell from cut flowers what they are likely to turn out in beds than a new-born infant; and that to send such flowers through the post, for the opinion of such good judges, is even worse than useless. It may turn out that a flower which pleases best in a room is, of all other flowers of its class, the least suited for massing in beds. It deceives one of the best judges, he gives a conscientious opinion in its favour, thousands buy it, and are deceived as soon as they put it to the test—the only true test of a bedder—to see it growing from week to week, and month after month, for one whole season.

If the experimentalists for the Horticultural Society will take that branch in hand, and do it thoroughly, and perfectly independently, they would confer a boon, more or less, on every lover of gardening. But by their plan and practice of "proving" so many packets of seeds for certain nurserymen, they do not the slightest good to a single being except to the said nursery or seedsmen, and not even so much to them as one might think.

Let any one of those defrauders who impose on the public with fine names and new wonders in the seed line, find out that No. 22 of a Pea, or Carrot, or Carnation, had been found at Chiswick Experimental Garden to be the best, the shortest, or longest, or the most sweet, and sure enough he has bushels of the very thing in sealed packets, as true as the Society's *Lobelia ramosoides*; and where could you find the heart to dissuade people from enjoying the luxury of buying from such fellows "who sell so cheaply," and give more than the value of the money in sound information?

There seems no end to the variegated Geraniums, and some of them will certainly make splendid bedders. Some are only fit for edging beds of low plants, on account of their dwarf habit; and many of them, when

grown into large flat specimens, will be favourite pot plants for drawing-room, lobby, and staircase decoration. No plant does better in a draught and in extremely dry positions about a house than some of the dwarf fancy variegated Geraniums; but they must be large to be worth looking at, and big enough to fill a No. 16 pot by the end of March.

Have them plunged in a vase or ornamental pot all the summer, and change them from one place to another, and from side to side; keep the top mossed, and be most particular about the watering; be quite sure they need water ere they get it, and out with them of a morning on the grass or gravel before people are much about; give them three or four good waterings in succession—if a pot is well drained you cannot hurt a plant by passing ten gallons of soft, pond, or rain water through the pot in so many minutes: so, if you give one gallon of water to a variegated in three or four turns, no harm will ever come of it in summer, but much good. Let the pots drain off the last drop which will run away before you put them up again, or at all events before you moss them. Let the moss be as green as grass, and have it watered at the same time thoroughly; throw it in a bucket of water, plunge it two or three times, take it out in handfulls, and squeeze the water out of it, and let it half dry before it is put over the pots. By that very mode I have seen Geraniums do uncommonly well, with watering only twice a-week in the hottest weather, and where bare pots holding the same kinds of plants would need to be watered twice a-day, on account of the currents and dryness of the place where they stood.

But moss deceives more than crinoline. If you could see the beautiful plants sent from the country and from the nurseries to the London drawing-rooms at this season, they would make your hair stand on end. The pots are in large trays, or baskets with tray-like stands, to make sure of not wetting the carpets. The best gardener among the domestics looks after these flowers. The pots are all mossed out of sight; and my lady looks at them as often as she goes into the room or leaves it; and as long as the surface of the pots is moist, the belief is that all is right, when the fact is just the contrary. Mossing pots has this effect among others. The surface of the ball, or top of the pot, is the last part to get dry; and by seeing the top of the pot wet one is easily deceived into the belief that the plant wants no more water that day or that afternoon, when the chances are, at least with Heaths, that in another hour, or two at most, the plants will be past redeeming by any other means than drawing out the purse, or sending home for more to go the way of all the earth.

A new and an economical plan has sprung up in London, and is growing fast, to do with room-plants as should be done. "Such and such people never lose a plant; one never sees a dead leaf or living insect on them, and their plants never seem to want water; for, go when you like, there they are as fresh as in the country." The secret and safety of such plants is an understanding with some nurseryman to send a practical gardener to "look" at the plants every morning or every other day. Such a man can see, by "looking," what state plants are in without examining the pots; and after "looking" at them for one week he can tell, without seeing them, what each is most likely to want.

It takes an age of time to make good, large, handsome specimens of some of the new dwarf variegated and fine-leaved Geraniums. But there is a new way, and a cheap way, as fast as an express train, and safer than bedding-out Geraniums. It is this. After all the bedding is done, the young stock for decoration, in the single specimen style, gets a shift: these variegated and other pet kinds forming part of the stock. The shift is into one size larger pots, and the soil is lighter than common. The move is to get a fresh start in the roots as soon as possible; and the easiest and cheapest way is to put all these newly-

potted plants into a cold frame at the end of May, to keep the frame well aired and partially shaded all day, and to take off the glass entirely during the night, and to sprinkle over the leaves late in the evenings of clear and dry days, with a rosed watering-pot. Three weeks, or, say the whole month of June, spent that way will lay the very surest foundation for healthy plants and for a vigorous growth during the next nine or ten weeks—say, from the 1st of July to the middle of September. Every plant in England, be it a stove plant, or an alpine, dislikes the sun all through June, and grows, planted in good soil and proper situations, out of doors better than in any other way, during the months of July and August. Try the *Ixoras* in the American beds; the *Vincas* and *Clerodendrons* among the Cape Broccoli; and the variegated *Geraniums* on the Vine-border, or on one just as good and as well sheltered, and the result will be what I say. Then all young stock, for pot-furnishing, is to be half forced in subdued light through the month of June during the day, and half retarded at night in a low, moist temperature, in order to get the roots so much in advance of the branches, and to avoid the extremes of mid-summer weather. At the beginning of July they are to be planted out at good distances apart, to run up as far as the border can stimulate without the one interfering or hurting the other, and so on from that time to the middle of September. When they are lifted, some care is bestowed in training them, just as if they were in pots; but the work is more in the name than in the doing.

A young *Geranium* of very limited growth, such as is the *Golden Chain*, which was struck last February, and brought in last April and May, and put through this most simple exercise on to next September, will increase just four times in three months, going it as fast as an express train all the while. But mind me, the plan is far too fast and too good for ordinary kinds of common *Geraniums*; for I have it to the very letter in full force myself, and I can assure you there never was a plan which paid so well in so short a time.

Yet it is but one-half of the journey to the top of the hill of fame. The other half I cannot get over, else I might be tempted to keep the secret, in order to astonish all London with such thorough bushes of those kinds of plants which other people despaired of seeing half so big or so fine in a lifetime. It is after the middle of September that the disposition to make flowers more than growth ceases with most of the *Perpetual Geraniums*, and it is then that some bedders go too much to leaf, and get rubbishy; that is the time to take the advantage for the second part of this process. The plants are cut round a little at the roots a week before lifting, and the slits made in the soil at the cutting are filled up with water for fear of a check. The plants are lifted and potted most carefully, and no root, or branch, is touched, and very little soil is taken with the roots; watered they must be, of course, and their leaves are never let dry, night or day, for the rest of September, and all that time the plants must be entirely in the open air. To put them into any kind of pit or house, hot or cold, is not half so good at that particular period; but the sun must not reach them the whole time, nor the places about them be dry for one hour together. Early in October they may be put into a cold pit, to guard against frost at night, more than for shelter from the weather and to get the benefit of the sun, as young roots get sufficiently active to sustain the leaves from flagging. When the pots are full of young roots—say, by the very end of October, the plants are to get a large shift, to last till next May, and the winter treatment then begins: the pots are plunged in bottom heat, and the place is never under 50° at night the whole winter, be the frost ever so hard. The day temperature is from 55° to 70° more or less by the sun, but not more than 60° by fire heat. One winter season of this work, after such a summer treatment, will make any one of the slow-growing and

short-jointed *Geraniums*, and all the variegated ones, grow as much as fully four years of the best pot management in the usual way. A young, healthy *Golden Chain*, on that system, would soon be as big as those *Pelargoniums* they take to the Shows, and grow in pure yellow loam, rotten dung, and a little sand just as well as *Petruchio*. I have been waiting for leave to mention where I had seen such *Golden Chains* this very spring; but the time for going about the work admitted no more delay. I shall have some lights constantly at work all this summer exactly as here described; but it is an old game, and must vary a little with the weather. When the wind is high the lights are not drawn off at night; if there is too much wet it is the same; when it is parching hot a thin mat covers the whole of the glass from nine in the morning till six at night, and the inside is syringed twice in the day, and the back ends of the lights are lifted four inches for air all day long. My object, however, is not specimen culture, but to apply this, the highest style of cultivation, to the objects of cross-breeding; and if I could follow the hobby the year round, with the bottom heat and stove temperature in winter, I would do something which some one else will do assuredly after I am gone, if not before.

D. BEATON.

RESULTS OF EXPERIENCE IN THE CULTURE OF BEDDING PLANTS.

1st. Do not be in too great a hurry in planting. Frequently friends call here and tell me that such a one has finished bedding by the end of April, or the first week in May. I seldom turn out anything of consequence until the last fortnight in May. I generally have a good deal to do after the 1st of June. I have also tried early planting; but, looking at the results as testified in my own practice and what I observe in the case of others, I see no reason to approve of very early planting. Of course, the season must regulate the time; and had I known we should have had such nice rains about the middle of the month, and dry, warm weather right on to its close, I might have been tempted to plant earlier, though even then I might not have gained much by the process; for

2nd. The state of the ground as respects heat and working dryness is of more importance than any mere specified day in May, or earlier. Most of the plants used for bedding are of a tender character. A chill at the roots injures them very much. The wetter the soil, if the weather is cold and sunless, the more apt will the roots be to suffer. From this chill at the roots many plants look miserable all the summer, and beds and ribbon-borders are rendered blanky and uneven. From this and other causes we have read praises of borders, that some of our neighbours, if they had the like, would try and contrive that visitors should not see them. Much may be done by duly hardening off the plants; though sometimes, and especially if the plants are in pots, some injury is done here if the process is effected at an early period by too rapid changes. We have turned out plants in pots that were standing out of doors in the beginning of May that had scarcely a healthy root close to the sides of the pots.

Taking care to harden off gradually, the next great thing is to have the soil warm before planting. I prefer, therefore, in fine weather, for the first eighteen days of May, in general seasons, to fork the beds over frequently, so as to turn in the heat from the sunbeams, instead of planting when the ground is comparatively cold. Instead of being chilled, the roots are thus encouraged to extend themselves at once. To encourage this still more in heavy soils, it is a good plan to give each plant a small handful of compost made of road drift, leaf mould, and burnt earth and refuse—the latter having still some heat in it—so as to make the compost rather warmer than the natural soil; and which neutralises any cooling effect

which common water might give it, even though that water was previously well exposed.

Comparative dryness, so as to be easily worked, is nearly of as much consequence as warmth; in fact, they generally go together. This dryness is nearly as essential to bedding plants as to sowing of tender seeds. If the beds are at all of any size, so that you must step on them or use boards for your feet, the ground—especially if the soil is at all of a stiffish nature—will become so consolidated that it will not become a kind of foster-nurse for the plants during the whole season. Experience would say, instead of planting out in such wet soil, “Wait patiently for a fortnight, if necessary even longer, and the future success of the plants, when turned out in well-aired, pulverised-heated, and dried soil, will more than compensate you for the patience of waiting a little longer.”

3. The mode of watering, though simple, also constitutes an element of success. The general mode is to plant the bed or border, and then water all the plants from the surface. The consequences are, that, in very hot days, the moisture is soon evaporated, the soil is cooled in consequence, and in clear nights that extra cooling is greatly promoted. When the plants show distress the process is repeated, and by-and-by the surface of the bed becomes pretty well as impervious to air as an iron pan; and the operator shakes his head, and wonders why, with all his waterings, the plants will not grow. Though far from believing our mode to be anything superior, I humbly submit it to notice, confident that many amateurs by adopting it may save much watering, and also be gratified with more success. As soon as the plants of a ring or two in a circle, or part of a row in a bed, are put in their places by means of a trowel, and are well fastened there by the hands, but so that the earth removed is not all returned, but a basin of from one to two inches from the surface of the border is left, the plants receive just as much water as will thoroughly moisten all their fibres and the earth around them, so as to furnish moisture enough for absorption for some time. The plants, if to be kept up, are then secured in their places by sticks or twigs, &c., and by that time all the moisture having been absorbed, the dryish earth is put over the basin, and left in rather an open comfortable condition. So the work goes on; the moisture surrounding the roots, the dryish soil covering the top, which both prevents the moisture freely escaping and the soil about the roots getting greatly more cooled than when the plants were turned out. Of course, in very sunny days we expect some of the leaves of the plants to flag; but, knowing there is enough of moisture at the roots, we attribute the flagging to the leaves, at first, perspiring more than the roots in their new position are able to absorb; and, therefore, to help them, we do not deluge the roots, which are wet enough already, but we either shade the plants, or sprinkle them repeatedly with a syringe, or a garden engine, to lessen evaporation from the foliage. When, in dry weather in June and July, the plants actually want watering, we give it in moderation at the roots from the surface; and, as after that time the soil is hot enough for anything, we stir the surface of the ground as soon as it is dry enough, either with a fork or Dutch hoe, to prevent the mass of the soil getting much warmer, and to prevent the moisture escaping into the common atmosphere instead of constituting a store round the roots. When visited with refreshing rains their benefit is rendered more lasting by similar surface stirrings, until the beds become so covered with flowers and foliage as to take care of themselves. We have noticed repeated heavy waterings given in June, when less than a tithe of the quantity of liquid sprinkled on the foliage would have been attended with more beneficial results. Few of our favourite bedding plants delight in the marsh or the quagmire, and yet the culture often given would lead to the idea that water and watering were the only indispensables for their successful culture. Something will

be gained if the impression gain ground, that, provided the roots are placed within reach of a sufficiency of moisture, every quart, gill, or pint given above that sufficiency, and especially in the first four or six weeks after planting, will be attended with *unfavourable*, rather than favourable, results. The next-to-surpassing grandeur of many grouped flower gardens last season was owing to the dryness of the summer.

Once more. The soil should not only be open, deep stirred, well pulverised, &c., when we commence, but it should be left in the same state when we finish planting. In planting rival beds I have tried two plans. The ground, previously well stirred and dried, was rolled, so that the feet of the planters should not make a great impression, which is a better plan than using boards, which do very well, however, for small beds. In one of these, the feet of the planter not sinking very much, the holes were made for the plants, watered as above, covered, and left. In the other, the surface was stirred for the first row; and when that was finished, the ground was forked up, levelled, and made ready for the second, and so on, leaving the whole bed level and loose, the soil pressed immediately round each plant being the closest and firmest. The last bed took and maintained the mastery all the season, though from forking and hoeing, &c., the first bed had ten times more labour bestowed on it during the summer. The first mode was by far the quickest at the time; in fact, with the exception of using a trowel, the plants are put in as quickly as a plantation of Cabbages. The second mode required more labour and time at the period of planting; but in addition to the greater rapidity of growth, time and labour, as to the season, were ultimately saved. The mere rapidity, therefore, with which a number of beds are planted, is anything but always a clear gain.

Lastly. Most of our bedding plants are naturally inclined to grow too much in the autumn months, and especially if the soil has been at all enriched. The period the plants require manurial assistance is just when planted; and, therefore, a little leaf mould round the plant will not only give that assistance, but encourage surface rooting, and, consequently, free flowering. After the soil gets hot enough by the end of June—if the season should prove hot and dry—a little mulching of riddled leaf mould, or very rotten dung, would prevent evaporation of moisture from the soil, keep it cool, and when rain comes, would, from the enriching material being supplied from the surface, contribute even then as much to the production of extra flowering as extra leaf-making. R. FISH.

VINES AND VINE-BORDERS.

THERE are, among the many and varied pursuits of the gardener, few objects which are so worthy of his most earnest attention as the production of good Grapes. If they fail with him he is likely to “shank off” himself; while if they (on the contrary) flourish, it is an atonement for a multitude of other little failures.

We, who live in the present day, are more and more surprised as time progresses with the great feats of horticultural skill which we witness, and which result from the division of labour in gardening. We find one man devoting all his time and efforts enthusiastically to the culture of Pines; another to Grapes; and so on through all the departments of gardening. By these means, and our exhibitions, the public taste becomes elevated, and our employers acquire an abundance of fruit, and that too, of the finest quality.

I would not here advise a gardener to make a *spécialité* of Grape growing to the exclusion of the cultivation of culinary vegetables, or the neglect of flowers. He has ample scope for his genius in many directions; and he who occupies a large place, and has to do things well in all its departments, at least has no sinecure.

But to our thesis, the Vine. This noble fruit tree is, of all we cultivate, perhaps the most ill-used. It is planted in rich, highly-manured borders, stimulated into rampant and luxuriant growth,

forced into leaves and fruit at midwinter, with its roots in a plastic medium of soil, sodden and fetid from the decay of animal substances, its roots rotten and decayed. From Vines thus situated good fruit is expected; they are regarded as prodigies of vigour—they are plethoric and luxuriant in a high degree. They have shown a good crop for quantity (but *nimum ne crede colori*), it does not finish well. The berries are not of a good colour, and are much disfigured by shanking, and, as a result, are most unsatisfactory.

Year after year rolls on, the same treatment is continued, and the produce gets much worse instead of better. The Grapes cannot be lower in the scale of quality, and they are condemned.

The above is a case of frequent occurrence; and although we have seen some borders much better made than others, we know that there are great errors in general in their formation, and will briefly notice them.

Of the drainage we need say little: it is now admitted to be the basis on which the art of culture is founded; it is most indispensable.

The chemical composition of the border is quite secondary to its mechanical status; and, therefore, we deprecate the use of the carrion, so strongly recommended by Mr. Roberts, of Raby Castle. We know that "to err is human," and while admitting that our cranium is not found to receive the same impressions as his, we hope that we do not speak disrespectfully. He has always been the great advocate for burying the carcases of animals, cut into very small pieces, in Vine-borders. His Vine-borders were the great animal necropolis of that part of the country. According to his own account his bunches were monstrously large and fine; but we read lately that they have become "small by degrees, and beautifully less."

It is quite certain that the best mode of forming a border for Vines is to dispense with the introduction of animal matter, and to form it of sound turf, cut about four inches thick, as the principal ingredient, mixing with it bones, either broken or ground, and a considerable quantity of mortar rubbish and bricks, with some dung which is short and light, but not what is termed rotten. Even this compost will become unfit for Vine-roots after a few years; and when it does so, instead of calling upon Hercules to hear our devout supplications, it is better to push the wheel with one's own shoulder, and to carefully take up all the roots, remove the old soil, and introduce fresh compost; performing the operation with great caution, and guarding against the exposure of the tender spongioles to the drying influence of the weather. September is the best month for this operation; and if it is performed with the careful skill which a good gardener knows how to exercise, no plant is more tractable than the Vine. Even the most aged will soon renew themselves.

During the last two years we have lifted several of our houses of Vines with much success, and the result I have is very gratifying. It would be too much to expect a great crop the first year after the operation; but nothing can be better than ours are this the second season after doing it.

I thatched the borders a yard in thickness with Fern after remarking the border; thus retaining within it all the heat accumulated during the operation. It was done the beginning of September, before the foliage was shed; and it thus materially assisted in forming fresh spongioles before winter. In no case are my borders deeper than two feet six inches, which I consider should be the maximum depth; having a practice-founded horror of borders five feet in depth, from which I have seen removed a black unctuous mass like putty, interspersed with black fragmentary portions of dead roots, and being very offensive to one's olfactory nerves.

Believing that it is all-important in growing late Grapes that the roots should have a proper climate to vegetate in, and that they should not be saturated by the cold rains of our autumnal and winter months, I have planted one house of the latest kinds of Grapes procurable. The selection consists of *Lady's Downe's* Grape, *Trentham Black*, the *Muscat Hamburgh*, *Spencer's new Muscat*, *Muscat of Alexandria*, and *West's St. Peter's*; and the border is made entirely within the house.

Some of our best gardeners protect their outside borders where they have late Grapes, which answers very well; particularly so at the late Speaker's (Lord Eversley), where they use asphalt and felt shutters, which cover the whole border. But I think it is preferable to make the border within the house in this our very uncertain climate. The border must be made, whether within or without the house, at much the same expense; and when made within, it is at once formed and protected.

That fatal and mysterious disease the mildew has, of late years, been very prevalent; and it has occurred both in small, ill-managed vineries and in those of Her Majesty the Queen, where everything is done in the best and most approved manner. We have hitherto escaped a visit from this insidious plague; but we deem it right to take ample precautions against it, and dress our houses and their flues about three times a-year with lime and sulphur—and this is, as we think, destroying "the worm i' the bud." We have one vinery, a sort of pit, peculiarly damp and low—a most natural habitat for mildew—but by these means it has escaped it.

If, in arranging a new Vine-border, the system recommended by Clement Hoare of dividing the border into compartments for each Vine were carried out, it would be an advantage, allowing persons to take out the border of one or two Vines at a time, and to renew them with fresh compost. In a large place having several vineries, if two or three Vines were taken up annually, it would be the means of keeping the Vines in perfect order and of having first-rate Grapes, as there would always be a majority of them in fine bearing condition.

It is the province of the cultivator to assist Nature rather than to violate her laws. If we turn to the Grape-growing countries, we find the best Grapes produced from Vines which grow in soils of a gravelly or stony nature. A certain degree of moisture is necessary, but not anything amounting to wetness; and the Vine finds this condensed on the surfaces of stones in a happy medium for its requirements.

Let us take a lesson from the great book of Nature in cultivating Vines. Let us endeavour to form borders which shall remain in an equable state of moisture, and to keep them porous and disintegrated, rather than by filling them with garbage or dung in a rotten state, to hasten the period when they will become sour and effete.

In the course of long practice one meets with strange incidents and anomalies. I remember some old vineries at Althorpe Park, Northamptonshire, which for many years produced the finest Grapes that could be wished for, ripe by May-day annually. The border was made in the old-fashioned way—five feet deep, a strong adhesive soil. I saw it eventually taken out, and there was not a root alive in the soil, but the Vines had instinctively formed roots in the front brickwork, which was in all directions interlaced by their tender spongioles; and these, attracted by the heat and moisture of the house, supported as fine a crop of Grapes as could be desired.

It is often to be observed that, in forcing early Grapes, the fruit seems to be suddenly struck with paralysis. This arises, I opine, from the first-formed leaves and shoots, with the fruit which has been fed at the expense of sap stored up in the stem of the Vine having exhausted the supply; whilst the roots are, from being in a cold medium, incapable of adding a further supply. This occurs, too, at a period of the last swelling, when a large supply of food is needed. In the language of professional gardeners it is called "shanking;" and is, perhaps, the most general of any disease among Vines. Vast discussions have been entered upon by practical men as to its cause, and remedies have been suggested; but I think the only one in such cases is to lift the Vines carefully and replant them. There may be mismanagement in ventilation, and the admission of cold draughts of air may be mischievous in their effects; but we may as well expect to gather Figs from Thorns as to have good Grapes from Vines which have not good and healthy roots.

Having occupied my assigned space, I conclude this article with the hope that it may lead some of your "country gentlemen" to reflect on the subject; and that, ere long, we shall hear of Vines so operated upon which have been made to bring forth good Grapes for their worthy owners.—HENRY BAILEY, *Nuneham*.

NOTES ON APPLES AND PEARS.

(Continued from page 111.)

ALL persons must remember their schoolboy days; they, also, must remember, that at some period or other of those days, what a longing desire they had to ascertain how far they had progressed in their different branches of study; at least to know how soon the next holiday *fête* would be; or such a longing for the time to come, that they would almost count the hours to the day when the Midsummer, or Christmas, holidays were to begin. Just such a longing had I; but not for the holiday *fête* this time, or to know how much longer I had to stay at those desks, but to see the result of the experiments that had

been tried on those fruit trees that were mentioned in a former number. These are on no small scale, being planted in rows running from the north to the south side of the orchard, at about twenty feet from tree to tree, and the same distance from row to row. Where the Pyramid and trained Pear trees are growing they are planted even closer than this, and each year adds more to their numbers, which, at this present time, with all the different kinds, exceeds 30,000.

The first time I went into this orchard was with the owner. I never have been to America, it is true; but when we were sometimes walking, sometimes crawling, about amongst those trees I thought we were there, or in some other unexplored part of the globe; and, as if by magic, for it was without the least signs of sea-sickness. From one place would start out that which would afford high glee for the sportsman and his dog—the rabbit, or hare. Then, after having moved forwards a few yards, there was to be seen, coiled up, basking in the sun, that reptile which very few would come upon suddenly, or unexpectedly, without a shudder—the viper. I learned from the conversation that then passed the treatment this orchard had received from the time it was established.

After the trees had been planted for two years they were all cut, so as to form round bushes; then for several years following every shoot they made was, in the winter months, cut back to two and three eyes, which treatment gave some of the kinds such a check as they never recovered.

The soils of this one orchard vary very much, there being four distinct kinds, *i. e.*, light, sandy soil over stiff clay; good loam over the same; very stiff close-working soil over marly clay; and shallow soil over gravelly clay. It was on this soil last mentioned the trees suffered so severely, and being some of the choicest sorts, such as all the kinds of *Nonpareil*, which seem to be quite a host of themselves; the *Golden Harvey*, *Golden Reinette*, *Margil*, *Norfolk Beefin*, *Striped Beefin*, and many others too numerous to mention here.

That the greater part of them would never make good standards could be seen at a glance, but they now form very tidy half-standard, and bush-shaped trees; but to bring them to this, I was obliged to have recourse to what is often the doctor's motto—"kill or cure." Amputation was carried to a tremendous extent, and a clean sweep was made of all the lower branches. The next thing was to banish or destroy everything that was robbing them of the greater part of their nourishment, and excluding that free circulation of air from the surface of the ground which was so essential to their well doing; then the whole surface was dug with spades, and in as rough a manner as it was possible to do it, and afterwards planted with different kinds of vegetables.

That these and all other different kinds of soils affect the degrees of growth in the wood, and the size and colouring of the fruits, also in the length of time the different fruits will keep, must be generally admitted; but this I shall not enter into now, as it will, as I before mentioned, ere long be handled in a much more able and scientific manner than it is possible for me to do.

But there are other things that affect Apples and Pears beside soils and situations, which every one that grows those fruits might prove for himself. There is a remark that is frequently made in common conversation, when speaking of children, which is, that is impossible "to put old heads on young shoulders." Reverse this, in the working of these fruits, and there is a view of the very thing at once. Having watched those trees that were regrafted about fourteen years ago very narrowly, I am led to believe that there is yet much to be learned in this part of the science of fruit growing, which, if studied and practised more, the fruits if not improved in flavour (and if managed judiciously, I verily believe they would be), the same varieties in many instances, through working them in this way, would be in use from one to two mouths longer. Here the *Marie Louise* Pear has been regrafted on many different kinds; but on none does it do so well as on the *Winter Crassane*, for from those trees the appearance of the fruits is improved, without encroaching on the quality of their flavour. I had Pears from one of these trees in the middle of February, when there was not one of the same variety to be found in the neighbourhood, and they would have kept longer. They were rather under the general or medium size, but beautifully clouded with russet. Here there are not twenty trees that have been in above ten years that have not been cut off and regrafted. The fruit garden has the whole of its wall covered with Pear trees, all of which have been served as above,

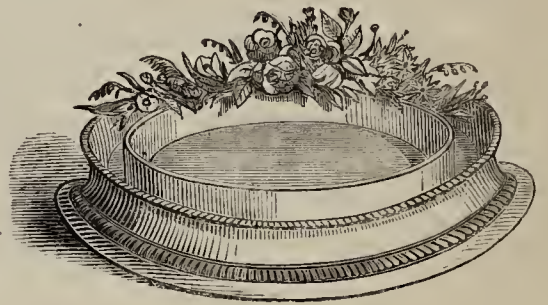
and they are noble specimens. Some of them are of old trees regrafted, and all on different kinds. I have headed back old trees, and then regrafted them, when in three years they have covered nearly as much wall as the old trees did before they were cut back. Then, when well trained, the appearance of them to the greatest or most fastidious critic could not fail to be much more pleasing than the old ones; and to the owner of them much more profitable, for I have found here that trees grafted in this manner bear much more abundantly, and seem to borrow a new existence.

That the sorts they are regrafted on affect their keeping properties is certain; for there are several kinds here which had the grafts of their several kinds put on different kinds; trees planted side by side on the same kind of soil; and the result is, that on some the fruit is larger, and on others much smaller. The growth of the wood on some kinds is much faster; and from some of them the fruit is fit for use from six to eight weeks before the others show the least signs of ripening. This is on both Apples and Pears. But as a proof of the spirit that is pervading some of the minds of the small fruit growers in this neighbourhood, I can state that I put on last year above 4,000 grafts of both kinds for different gentlemen in Somersetshire and Wilts, and all of them on trees that had been grafted before. Here, in my present situation, I have put on above sixty grafts, and this is but a very small place, right in the heart of a town, and several others are following the example. The sorts the old trees were before they were cut off, and the sorts that are now put on them, I shall not enter into at present. I have not the least doubt, but that specimens of them will be sent to compete with those of the other growers of these fruits, so that their qualities might be made known, and not remain, as they are now, hidden under a bushel.—J. ASHMAN.

(To be continued.)

FLORAL WREATH.

WE saw a few evenings since a very simple and beautiful way of arranging and preserving flowers in a drawing-room. It was in a tin box, made in a circular shape, as shown in the cut annexed.



It was brought from Berlin, Prussia, where they are much used. The box is about two inches deep, and one inch and a half in width, and about fifteen inches in diameter, although it can be made of any size. The tin box is painted green, and is kept nearly full of water. When the flowers are arranged in it, it presents the appearance of a beautiful wreath. A lamp, gas-burner, or statuette, can be placed in the centre of it.—(*American Gardener's Monthly*.)

QUERIES AND ANSWERS.

ALOE versus GREEN FLY—YOUNG ROOKS.

"A Glasgow Subscriber to THE COTTAGE GARDENER begs to inform the Editor, that, as lately recommended, he has tried a strong solution of bitter aloes for green fly, but, as yet, with no success. Its application seems perfectly harmless to the insects. He has also tried a strong infusion of hellebore powder with like results. In both cases the plants were well syringed with the liquid.

"Can the Editor inform him if young rooks remain with their progenitors if not shot, or if they emigrate to other quarters? He does not wish his rookery to increase, and, at the same time, is unwilling to destroy the young ones."

[Young rooks usually establish themselves where they were hatched; and where they were not allowed to be killed they have been known to build as many as six-and-twenty nests in one tree. So close were many of them as actually to touch each other.]

MANAGEMENT OF A LARGE TRANSPLANTED YEW.

"I beg to ask your opinion about a recently-removed Yew tree, which my worthy master had planted in his garden in October last, in memory of a deceased friend. It stands about fifteen feet in height, with good side-branches in proportion; and was conveyed about half a mile with a pretty good ball of earth to its roots, and was stayed with three pieces of wire as soon as planted. It looked very well until the cold cutting winds made it turn very brown the latter end of March. I have been told it would die by several persons; including practical men: but, thanks to the invaluable information I have received from time to time by reading *THE COTTAGE GARDENER*, I went silently to work, and gave it a good syringing twice a-day ever since it began to look half dead; and the result is I am now rewarded by seeing it push out new buds, which I consider are sure signs of life, and that the sap is in action."—R. A., A CONSTANT SUBSCRIBER.

[You have done wisely. It is not at the roots that well-planted trees require assistance at first, so much as over the surface of the leaves and bark, to keep them fresh and free from perspiring too much. But as soon as fresh growth comes see that the roots are constantly supplied with water, to enable them to make up for the reduction of their numbers caused by transplanting.]

A HOMELY FUMIGATING CONTRIVANCE.

THE present being said to be the age of utility and economy, or, in some cases, both united, the inventive genius of our machine makers seems to know no bounds to which their various contrivances are made available to lessen human labour. In the gardening way we have our full share of mechanical apparatus, which are set to perform the duties before done either by hand or by some rougher contrivance. Not the least important of these are the fumigators offered to our use (I wish they would also multiply the materials with which the fumigation is made as well). Some years ago there was much contention amongst garden mechanics as to which could produce the best fumigator; while, more recently, we are told an ingenious friend to the gardening world has set his fumigating apparatus going by clock-work, which, no doubt, is very good; but I fear many enthusiastic horticulturists will have to sigh in vain for this novel contrivance, and adopt some homely makeshift to perform the duties this singular piece of mechanism does itself. Those whose means fall short of their wishes will be obliged to do so. It is, therefore, to the humblest of these that I now beg to describe a very homely way of fumigating effectually the smallest structure, or, it might be, a large one, as the case may be. I believe I once before explained it in *THE COTTAGE GARDENER*, but it may be excusable to repeat it.

Supposing a common one, two, or three-light frame requires fumigating, the bed or floor of which is not more than eighteen inches from the glass, clear a space in the front about eighteen inches square; procure a piece of iron, or a blue slate will do, which prop up on inverted pots, or something of that kind, as near the glass as convenient, leaving space underneath for a five-inch flower-pot. Into the bottom of this pot put an inch, or more, of sand, sufficient to steady a small piece of tallow candle about an inch long. This done, get a piece of old, small wire, bend it and crush it in the hand until it become an entangled mass about half the size of a cricket-ball. This, being rather flattened, is to be put into the flower-pot to keep the tobacco from resting on, and putting out, the candle. Nothing more is to be done but to light the candle, put on the wire, and over that the tobacco. The wire not being more than half an inch, or so, in thickness, so as not to keep the tobacco at too great a distance from the candle. To create a quicker combustion I have often put in a few small pieces of split deal, which, burning quickly, speedily envelope everything in as dense a smoke as is consistent with their welfare. In fact, the contrivance admits of the fumigation being done either quickly or slowly and gradually. To the cottager who has only a few plants in his window, if they could be set out of doors some mild day, and some homely

framework of sticks set over them, on which to rest a sheet or other covering, the fumigation could be performed in the same manner. Care being taken to moderate the quantity of smoke to the wants of the plants, and not to overdo them. A very little practice will enable any one to manage this.

The advantages of the above plan over the old-fashioned way of putting a few hot cinders in a pan or flower-pots are obvious. The cinders are detrimental to vegetation; besides which they speedily get cool, and are useless, and fumigation can only be prolonged a certain time with them. On the other hand, a small piece of candle will burn fifteen minutes; or if it be necessary to have a thick, black smoke immediately, it is only to put on some small sticks, and the candle being below them prevents their being smothered out by the damp tobacco. Although the candle will melt and run amongst the sand, it generally burns all away for all that, and but rarely requires any attention.

While on this subject I may mention that my opinion is, that a quick combustion of the tobacco is the most effectual way of destroying the fly where the plants will bear it. A quick combustion is also the more economical; for if the tobacco be too slowly consumed, its smoke escapes nearly as fast as it is produced through the various interstices which all hothouses have. But I must not here advocate an indiscriminate use of thick, black smoke, which would be all but fatal to some plants; but when smoke is not accompanied with heat, or with those noxious gases emitted by charcoal or coke (which it often is where the fashionable fumigators are used), I believe that many plants will bear a large proportion of fair tobacco smoke. Nevertheless, it is advisable for the inexperienced to err on the safe side; and it is better to repeat the smoking several times than injure valuable plants. To the amateur who is obliged to crowd so many things into his only house, where he also expects to have a few Grapes, I would advise him to be particularly careful not to fumigate strongly, or he will injure what is generally the pride of Grape growers, "the large leaves of their Vines," and then we all know when once hurt they cannot be replaced during the season.

Melons and Cucumbers are also impatient of much smoke; but if the first appearance of fly be met by a slight smoking, and that repeated the following evening, or the one after that, the evil may be, in a great measure, prevented; which in this case, as in many others, is much better than cure.—J. ROBSON.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 126.)

NECTARINES.

FAIRCHILD'S.—Fruit small, round, slightly flattened at the top. Skin yellowish-green, bright red next the sun. Flesh yellow to the stone, dry, and sweet. Stone nearly smooth. Flowers large. Glands kidney-shaped. Ripens in the beginning and middle of August; but it is of little merit, its only recommendation being its earliness. Flanders. See *White*.

French Newington. See *Old Newington*.

GOLDEN (Orange).—Fruit medium sized, roundish-ovate. Skin fine waxen yellow in the shade, and bright scarlet, streaked with red, where exposed. Flesh yellow, adhering to the stone, juicy, and sweet. Flowers small. Glands kidney-shaped. Early in September.

Grosse Violette Hâtive. See *Violette Grosse*.

Hampton Court. See *Violette Hâtive*.

HARDWICKE SEEDLING.—Fruit very large, almost round, and sometimes inclining to oval. Skin pale green on the shaded side, entirely covered with dark purplish-red next the sun. Flesh greenish, with a tinge of red next the stone, melting, juicy, rich, and highly flavoured. Glands none. Flowers large. Ripens in the middle and end of August.

This was raised from the Elruge at Hardwicke House, near Bury St. Edmunds, and is one of the hardiest and most prolific of nectarines.

HUNT'S TAWNY (Hunt's Early Tawny).—Fruit rather below medium size, roundish-ovate, narrow towards the

top, compressed on the sides, enlarged on one side of the suture. Skin pale orange, deep red next the sun, spotted with russety specks. Flesh deep orange, rich, and juicy. Tree hardy and prolific. Flowers small. Glands none. Ripens in the middle and end of August.

IMPÉRATRICE.—In size and appearance this has a considerable resemblance to *Violette Hâtive*; but the flesh is not so red at the stone as in that variety. It is very richly flavoured, and when allowed to hang till it shrivels—a property which few of the Freestone Nectarines possess—it becomes quite a sweetmeat. Glands kidney-shaped. Flowers small. Ripens in the beginning of September. The tree is hardy, and an excellent bearer.

Large Scarlet. See *Violette Hâtive*.

Large White. See *White*.

Late Green. See *Peterborough*.

LATE MELTING.—This appears to be a variety of *Peterborough*, but the fruit is double the size. Glands kidney-shaped. Flowers small.

This is a very late variety, and is well worth growing in large collections when it is desired to extend the season of this kind of fruit.

Lewis'. See *Boston*.

Lord Selsey's Elruge. See *Violette Hâtive*.

Lucombe's Black. See *Early Newington*.

Lucombe's Seedling. See *Early Newington*.

MURREY (*Black Murrey*).—Fruit medium sized, roundish-ovate, enlarged on one side of the suture. Skin pale green on the shaded side, and dark red next the sun. Flesh greenish-white, melting, and richly flavoured. Stone nearly smooth. Glands kidney-shaped. Flowers small.

An excellent variety, ripe in the end of August. Tree hardy, and a good bearer.

Neat's White. See *White*.

New Dark Newington. See *Early Newington*.

New Scarlet. See *Violette Hâtive*.

North's Large. See *Old Newington*.

Oatlands. See *Elruge*.

OLDENBURG.—Fruit medium sized, ovate. Skin pale yellow on the shaded side, but very much covered with very dark red on the side next the sun. Flesh yellowish-white throughout, and without any trace of red next the stone, very melting and juicy, with a rich, sugary, and vinous flavour. Glands kidney-shaped. Flowers small. Ripens in the end of September, and hangs well till it shrivels, when it is very rich.

OLD NEWINGTON (*Anderdon's*; *French Newington*; *North's Large*; *Rough Roman*; *Scarlet Newington*; *Smith's Newington*; *Sion Hill*).—Fruit rather large, roundish. Skin pale next the wall, bright red next the sun. Flesh pale yellow, red at the stone, to which it adheres, juicy, sweet, rich, and vinous. Stone small and rough. Flowers large. Glands none. Ripens in the middle of September.

Old Roman. See *Roman*.

Orange. See *Golden*.

Perkins' Seedling. See *Boston*.

PETERBOROUGH (*Late Green*; *Vermash*).—Fruit medium sized, round. Skin green, with a very faint dull red next the sun. Flesh greenish-white to the stone, juicy, but nothing very remarkable except as being the latest nectarine known. Flowers small. Glands kidney-shaped. Ripens in October.

PITMASTON ORANGE (*Williams' Orange*; *Williams' Seedling*).—Fruit large, roundish-ovate, narrow towards the top, which ends in an acute swollen point. Skin rich orange, brownish-red next the sun, streaked where the two colours blend. Flesh deep yellow, red at the stone, juicy, rich, and excellent. Stone small, sharp-pointed, and very rough. Flowers large. Glands round. Ripens in the end of August and beginning of September. Tree an excellent bearer.

Red Roman. See *Roman*.

RIVERS' ORANGE.—This is a seedling raised from *Pitmaston Orange*, and differs from its parent in having kidney-shaped instead of round glands. The fruit is similar to that of *Pitmaston Orange*, and very richly flavoured; and the tree, in Mr. Rivers' estimation, is more robust in its habit, bears, perhaps, more profusely, and is hardier than that variety.

ROMAN (*Brugnon Musqué*; *Brugnon Violette Musqué*; *Old Roman*; *Red Roman*).—Fruit large, roundish, flattened at the top. Skin greenish-yellow, brown muddy red, and rough with russety specks next the sun. Flesh greenish-yellow, deep red at the stone, to which it adheres, rich, juicy, and with a highly vinous flavour, particularly when allowed to hang till it shrivels. Flowers large. Glands kidney-shaped. Beginning of September.

In many collections *Violette Hâtive* and *Elruge* are grown for this variety; but from both of these it is readily distinguished by its flowers, which are large.

Rough Roman. See *Old Newington*.

Scarlet. See *Old Newington*.

Sion Hill. See *Old Newington*.

Smith's Newington. See *Old Newington*.

Springrove. See *Elruge*.

STANWICK.—Fruit large, roundish oval. Skin pale lively green where shaded, and purplish-red where exposed to the sun. Flesh white, melting, rich, sugary, and most delicious. Kernel sweet, like that of the sweet almond. Glands kidney-shaped. Flowers large. Ripe the middle and end of September.

The fruit is very apt to crack, and requires to be grown under glass. Hitherto it has generally failed to ripen thoroughly against walls in the open air, except in one or two instances, with which I am acquainted, where grown in a light sandy soil and a good exposure, it then ripened thoroughly without cracking.

Temple. See *Elruge*.

Vermash. See *Peterborough*.

Violet. See *Violette Hâtive*.

Violette de Courson. See *Violette Grosse*.

VIOLETTE GROSSE (*Grosse Violette Hâtive*; *Violette de Courson*).—Fruit larger than *Violette Hâtive*. Skin pale green, marbled with violet-red. Flesh less vinous than *Violette Hâtive*, but an excellent fruit. Flowers small. Glands kidney-shaped. Early in September.

VIOLETTE HÂTIVE (*Aromatic*; *Early Brugnon*; *Early Violet*; *Hampton Court*; *Large Scarlet*; *Lord Selsey's Elruge*; *New Scarlet*; *Violet*; *Violette Musqué*).—Fruit large, roundish-ovate. Skin yellowish-green in the shade, dark purplish-red, mottled with brown, next the sun. Flesh yellowish-green, deep red next the stone, rich, sweet, and vinous. Stone roundish, deep reddish-brown, and deeply furrowed. Flowers small. Glands kidney-shaped. Ripens in the end of August and beginning of September.

Violette Musqué. See *Violette Hâtive*.

WHITE (*Emmerton's White*; *Flanders*; *Large White*; *Neat's White*; *New White*; *White Cowdray*).—Fruit large, nearly round. Skin white, with a slight tinge of red next the sun. Flesh white throughout, very juicy, with a rich vinous flavour. Stone small. Flowers large. Glands kidney-shaped. Ripens in the end of August and beginning of September.

White Cowdray. See *White*.

Williams' Orange. See *Pitmaston Orange*.

Williams' Seedling. See *Pitmaston Orange*.

LIST OF SELECT NECTARINES.

Those marked * are suitable for small collections.

*Balgowan	Pitmaston Orange
Downton	*Rivers' Orange
Early Newington	*Roman
*Elruge	Stanwick
*Hardwicke Seedling	<i>Violette Hâtive</i>
Oldenburg	*White

(To be continued.)

THE SCIENCE OF GARDENING.

(Continued from page 120.)

WE have noticed the ready mode, so usually within the gardener's power, of improving the staple of a soil by the mere admixture with it of some other soil in its immediate vicinity. As a guide in forming such mixtures, by showing how the earths and their compounds differ in their physical qualities, the following researches of M. Schubler, epitomised by Mr. Cuthbert Johnson in his "Modern Agricultural Improvements," will be found useful.

"The weight of the earths and their compounds differs very materially, according to their degree of dryness. In the following tables, the *wet* state is regarded as being that when a soil thoroughly moistened is laid in a wet state on a filter, and no longer allows any water to drop through.

"Several of the earths exhibited the following differences in reference to this point. —

Kinds of earth.	Specific gravity, that of water being taken as = 1.	Weight of a cubic foot.	
		In the dry state.	In the wet state.
		Pounds.	Pounds.
Calcareous sand	2.722	113.6	141.3
Siliceous sand	2.653	111.3	136.1
Gypsum powder	2.331	91.9	127.6
Sandy clay	2.601	97.8	129.7
Loamy clay	2.581	88.5	124.1
Stiff clay, or brick earth	2.560	80.3	119.6
Pure grey clay.....	2.533	75.2	115.8
Fine white clay (pipe clay)	2.440	47.9	102.1
Fine carbonate of lime	2.468	53.7	103.5
Fine carbonate of magnesia.....	2.194	15.8	76.3
Humus	1.370	34.8	81.7
Garden mould	2.332	68.7	102.7
Arable soil.....	2.401	84.5	119.1
Fine slaty marl	2.631	112.0	140.3

"*Weight of Artificial Mixtures of Earths.*—When different earths are artificially mixed together, a cubic inch of the earthy mixture obtained gives a weight greater than the arithmetical mean (or common average) of the earths entering into the mixture, whether mixed in equal portions according to weight or volume, or in other quantities. 'I took,' says M. Schubler, 'in different proportions, a common siliceous sand, a rich clay, and a fine clay-marl, of which I had previously ascertained the absolute weights, and mixed them together, when I determined the weight of the mixture and obtained the following results:—

Kinds of earth.	Weight of 5.7 cubic inches.	Arithmetical mean.	Increase of weight.
	Grains.	Grains.	Grains.
Common siliceous sand.....	2840		
Stiff clay, or brick earth	2020		
Fine clay-marl.....	1790		
Clay and sand in equal proportions by weight	2545	2430	115
Clay and sand in equal proportions by volume	2685	2130	255
2 parts clay and 1 part sand by weight	2390	2293	97
2 parts clay and 1 part sand by volume	2470	2293	177
2 parts sand and 1 part clay by weight	2710	2566	174
2 parts sand and 1 part clay by volume	2825	2566	259
Equal parts of marl and sand by weight	2315	2267	48

"This phenomenon is only to be explained by supposing a more intimate approach in the interstices of the contiguous earthy particles; something similar, therefore, seems here to happen with this mechanical commixture to what takes place in a still higher degree with natural mixtures of earthy and rocky materials: for instance, with the dolomite sand and stony marls, in which cases not only the absolute weight, but the real specific gravity also, is greater than in the separate earths."

"Such researches as these all tend to promote the *permanent* improvement of the soil by the admixture of earths; and there is no doubt of the great advantage of this mode of improving land. 'The best natural soils,' said Davy, 'are those of which the materials have been derived from different strata; which have been minutely divided by air and water, and are intimately

bleuded together; and in improving soils artificially, the farmer cannot do better than imitate the processes of nature. 'The materials necessary for the purpose are seldom far distant; coarse sand is often found immediately on chalk, and beds of sand and gravel are common below clay; the labour of improving the texture or constitution of the soil is repaid by a great permanent advantage; less manure is required, and its fertility insured; and capital laid out in this way secures for ever the productiveness, and, consequently, the value of the land.'—(*Elem. Agric. Chem.*, p. 204.)

"A very important question to the cultivator of the soil is the amount of water, both by weight and volume, which various soils are capable of containing: this we shall find determined in the following table. To obtain these results considerable care is required.

"It might appear, that this determination could be made by the mere comparison of the weights of a cubic inch of dry and wet soil, or from the absolute weight of a volume of the dry soil, and its power of containing water; we should, however, in this way obtain no correct result, because many soils, especially those containing clay and humus abundantly, contract considerably in drying, a cubic inch of such dry soils generally occupying a greater space in their wet state."

Kinds of earth.	Power of containing water.		A cubic foot of the wet earth contains of water.
	According to weight.	According to volume.	
	Per cent.	Per cent.	Pounds.
Siliceous sand	25	37.9	27.3
Calcareous sand	29	41.1	31.8
Gypsum powder	27	38.2	27.4
Lime, precipitated	47	54.5	39.1
Fine lime	85	66.1	47.5
Fine magnesia	256	76.1	62.6
Sandy clay	40	51.4	38.8
Loamy clay	50	57.3	41.4
Stiff clay, or brick earth	61	62.9	45.4
Pure grey clay	70	66.2	48.3
White clay (pipe clay)	87	66.0	47.4
Humus	181	69.8	50.1
Garden mould	89	67.3	48.4
Arable soil	52	57.3	40.8
Slaty marl	34	49.9	35.6

(To be continued.)

KIDDLE NETS.

ONE day last summer I was dining with a friend in Loudon. On the appearance of a dish of waackerel, my friend asked—

"Have you ever seen them caught?"

"No," I said; "my aquatic adventures are confined to a trip down the river now and then, by steam or in a pair-oar. I am no salt-water sailor: especially have I no fancy for being rocked into a state of unutterable misery on board a fishing-boat. The sight of them riding at anchor has often made me experience emotions bordering on sea-sickness."

"Aye," he replied, "but I had in my mind a different mode of capture—one quite free from such unpleasantness. You may witness it from dry land if you please, although to join in and enjoy it thoroughly a ducking is essential."

"Where?"

"On the Sussex coast."

"Easily accessible?"

"Yes; within a moderate walk of a station on the South-eastern Railway."

"Which station?"

"Rye."

The result of this conversation was, that soon after I was in an early train bound for the spot indicated by my friend.

It was a delicious morning in the middle of June. The summer air had not lost all its sweetness, even after journeying over the numerous factories, and closely-built, thickly-peopled rows of streets, upon which travellers on that line of railway look down for some distance after starting: it was sweeter when the market-gardens came in sight, with their strawberry-beds; vegetables of every shade of green; and acres of hand-glasses glistening in the sun: it was sweeter still when we reached the open country, and it came to us unimpeded across the Surrey downs. Those beautiful downs! Somewhat barren-looking, perhaps, they are; but there is an unspeakable charm in their sharp outline against the

cloudless sky, and in the music borne from them on the breeze, the distance-mellowed treble tinkling of the bell which the leader of a black-faced and black-footed flock bears proudly.

But these were soon out of sight and hearing. The train, speeding on through tunnels and past stations, giving us a momentary glimpse of that marvellous treasure-house of beauty which has made Sydenham a "household word"—stopped in a little while at the "Reigate junction."

A short delay here, and we were steaming through one of England's fairest gardens. All around us lay a Kentish landscape, with its meadows—seas of rich grass; its hedgerows; cottages and cottage gardens, unmatched in the kingdom; here and there a little wood and water; while far and near were Hop-gardens, with their dazzling ranks of poles, standing bare of clinging foliage yet, except the little that made the lower portion green, and seeming to spin round from the pace at which we went. I should not have complained if we had gone a little slower past that Rose-covered station of which I caught sight as we flew by. Had we even stopped,—as trains will sometimes stop mysteriously, and to most of their passengers tediously long,—a few miles further on, no murmur of impatience would have escaped us. Amid scenery, charmingly illustrative of its specific name, stood the station of "Penshurst," well known to us in our school, or rather holiday, boy days. I had fished in the Medway and Eden which water its meadows, and cricketed in the noble park surrounding the castle of the Sidneys, long before the road had yielded to the rail; and when the yellow chariot took us to the coach instead of to the train. I had gazed, as a child, with rather more alarm and aversion than pleasure at the family portraits in the castle—such grim men, and such stiff, uncomfortable-looking ladies and children, seemed the descendants of the courtly Philip. But when those old times came back, at the sight of that printed board, even they were welcomed as old friends. "Tonbridge." We were wont, long ago, to pass through, outside the coach, and to see all the objects of public interest in this old town. But on that summer day, sitting inside the carriage of the train, we passed it by. We lingered past for a few minutes, and these were sufficient to enable us to exhaust the subject before us. There was a refreshment room, convenient but not picturesque, at the station; in the distance an accumulation of bricks and mortar, a church, *et praterea nihil*.

Surely our children, railway-travellers for life, will know but little about the towns of England!

Paddock Wood, the junction of the Maidstone branch, was reached and left behind. Another "hurst" was passed, and soon our train arrived at "Ashford." We had stopped here some time, and changed trains. On our again starting, I found myself with a companion. Opposite me was a hale gentleman, who told me that he lived "in the Marsh."

The church tower being noticed by me as a good object in the view from the railway, he replied—"Yes, there's a curious story about that church. They say that it and two others in the county (Lydd and Tenterden) were built at the same time by a master-builder, his apprentice, and a journeyman, respectively; and that the building of these churches was the cause of the Goodwin Sands." Before I could inquire further about this legend, my informant had alighted at his destination in the Marsh. Here the word "dore," spoken with that attention to the *r*, so noticeable in this part of the country, was all that met my ears; but Bradshaw filled up the omission, and gave me "Appledore."

A long ride through the Marsh. White sheep on a green-ground, post and rail fences, and narrow ditches, being the most striking features in the landscape, brought us to the station of a town bearing a name corresponding with that on my ticket, which I heard unabridged, its shortness scarcely admitting of division.

Here I emerged from the train, which was soon out of sight, leaving me standing on the platform in the company of the station-master, who looked—as country station-masters do—as if he had been fetched unexpectedly from his concealment; three other passengers, two of whom, by their frock-coats, ungloved hands, and sunburnt faces, I took to be captains of merchant vessels, the other an evident commercial; and the usual characters to be observed at such places on such occasions, to whom the arrival of a train, with or without passengers, appears to be a source of never-lessening amusement. Surrendering half my return-ticket, and leaving these last, who wondered what I was—my costume and equipment were such as I thought suitable to the occasion—I strolled through the lower part of the town.

It is one of the "Cinque Ports," or "Ancient Towns," not unpicturesquely situated on a slight eminence, showing on the

south side plain traces of the action of the sea in former days; but sloping on the others down to rich meadow lands,

"A league of grass, wash'd by a slow, broad stream."

Having passed through a stone gateway, one of the few which still stand in this neighbourhood—relics of England's national defences at the time when the forefathers of her Crimean and Indian heroes stood at loopholes armed with crossbow and belt—the vast expanse of marsh, which I had skirted on my way by rail, lay in the sun before me; thousands of acres of sheep-fattening grass land, diversified only by here and there a solitary house, or small cluster round a village chnreh; a few corn fields at this season varying little from the green of the surrounding meadows; a golden patch or two of turnips planted for seed; and a tidal river on its way to the sea. The sea itself was not far off—a mile and a half, perhaps, "as the crow flies."

At the place from which I saw it now were two or three maritime-looking men, indulging on shore their deck-pacing habits; to whom I applied for information respecting the fishing I had come to see. I learnt from them that the nets, by which the capture is effected, are called "kiddle" or "kettle" nets: further, that they would be fished in about two hours. Having also received directions for the way, I betook myself leisurely to the ferry; which crossed, I found my route lay along an artificial embankment running for some distance parallel with the river; then a turn to the left brought me to a road at the edge of a considerable extent of shingle, separated only by a fence from the Marsh meadows. Upon this otherwise-barren surface flourished luxuriantly hundreds of Horn Poppies, sunning their fragile golden blossoms. Further on rose irregular banks of sand hiding from my view the sea, which I could hear drawing off the beach with a monotonous sound as of a heavy rake being slowly dragged through the loose stones.

A charming place this!—sandbanks, with the little valleys between them, and the nooks and corners there, suggestive of pleasant pic-nics, all covered by the growth of a tough kind of grass, something like a rush, that has kept the sand from being blown over the adjacent country.

Thousands of rabbits have their homes in these banks; larks, ascending and descending, kept up that day a stream of music between earth and sky; there were warm spots where the yellow Galium grew, a natural "field of the cloth of gold;" while the sea *Convolvulus* found a genial resting-place for its delicate petals on the soft dry sand.

Crossing here, the sea was before me; the mouth of the harbour in the foreground filled up the north-eastern corner of the bay; and at regular intervals along the western coast stood the grey Martello Towers.

From this spot, at about half a mile along the coast to the eastward, I could see with my glass what appeared to be the tops of a row of poles extending from the shore some distance out into the sea.

Conjecturing that these were what I was in search of, I made at once for them along the sea-side of the sandbanks. Passing a coastguard station, I came upon a settlement with the appearance of having been commenced with one building, which had grown into a little group, all connected by a common interest, and all devoted to a common purpose.

There were many signs of fishing, in boats and fragments of boats, out-houses roofed with boats, nets and fragments of nets, and in the general air of the residents; some of whom were standing about the place, now and then casting an inquiring glance in the direction of the "kiddle" nets.—G. R. T.

(To be continued.)

VARIETIES.

FEMALE CULTIVATORS OF THE SOIL.—According to the census of 1841 there were then 66,329 women above twenty years of age employed in agriculture, without reckoning the widow-farmers (who are not few), or the farmers' wives. The late census gives 128,418 as the number so occupied, exclusive of the "farmers' wives," and "farmers' daughters," who are specially, but, perhaps, not completely returned as being 289,793. Of the independent female agricultural labourers, about one-half or above 64,000, are dairywomen. Neither in America, nor anywhere else, would dairy work be objected to as a feminine employment, conducted within doors, as it is, and requiring feminine qualities for its management; yet it is harder work, and more injurious

to health, than hoeing Turnips or digging Potatoes. "No end of work" is the complaint; and it is not an unreasonable one. On a dairy-farm the whole set of labours has to be gone through twice a day, nearly the whole year round; and any one of our readers who has seen the vessels on a Cheshire farm, the width of the tubs, the capacity of the ladles, the strength of the presses, and the size of the cheeses, will feel no surprise at hearing from the doctors that dairywomen constitute a special class of patients for maladies arising from over-fatigue and insufficient rest. There is some difference between this mode of life and the common notion of the ease and charm of the dairymaid's existence, as it is seen in a corner of a Duchess's park, or on a little farm of three fields and a paddock. The professional dairywoman can usually do nothing else. She has been about the cows since she was tall enough to learn to milk; and her days are so filled up, that it is all she can do to keep her clothes in decent order. She drops asleep over the last stage of her work; and grows up ignorant of all other knowledge, and unskilled in all other arts. Such work as this ought, at least, to be paid as well as the equivalent work of men; indeed, in the dairy farms of the West of England the same labour of milking the kine is now very generally performed by men, and the Dorset milkmaid, tripping along with her pail, is, we fear, becoming a myth. But even in Cheshire the dairymaids receive, it appears, only from £8 to £10 a-year, with board and lodging. The superintendent of a large dairy is a salaried personage of some dignity, with two rooms, partial or entire diet, coal and candle, and wherewithal to keep a servant—£50 a-year or more. But of the 64,000 dairywomen of Great Britain, scarcely any can secure a provision for the time when they can no longer lean over the cheese-tub, or churn, or carry heavy weights. In connection with agricultural labour we should consider the rearers of poultry, pigs, and lambs; the makers of cider and perry; and the bee-mistresses, who gain a living by their honey in many rural districts. The enormous importation of eggs from the Continent, and especially from France, shows that there is more work for women yet in this direction; but the reigning passion for poultry yards must result in a great diffusion of the knowledge and skill which the upper classes are cultivating so diligently. In addition to the twenty thousand female farmers and land-owners of England, and the half-million and more of "farmers' wives and daughters," a separate class of poultry-women will soon be able to make a good subsistence out of eggs and chickens. Then there are the market-gardeners,—thousands of women, most admirably employed. There are the florists and nursery-gardeners,—not unfrequently Quakers. It is a pretty sight,—a good nursery-ground and set of conservatories, under the charge of a sensible Quakeress, whose shrewdness penetrates the whole management. There are the flax-producers too,—not a small number, if we include the care of the crop, the pulling, steeping, beetling and dressing, and bringing to market; and, as 60,000 acres of Irish land are annually under flax, and 500,000 acres would yield no more than is wanted; and as millions of pounds sterling (£2,000,000 in ten years) have been wasted in buying an impure seed from abroad when it might easily be obtained at home, we may conclude that flax-producing is, or might be, an extending branch of female industry. We may add that the demand for labour will increase instead of diminishing, when the farmer consigns the preparation of the flax to establishments organised for the purpose, instead of insisting on doing it at home, and sinking in the market. At present the women are in one place, poking in the ditch or pond at home, amidst an insufferable stench, and waiting on the weather for days or weeks; and then beetling with the old-fashioned instrument; while in another place they are about the same work in scutching-mills, to far greater advantage. The steeping, done without the stench of decay, and in a few hours or days in vats, and the dressing by patent machinery, are proper work for women, and will, no doubt, employ more and more of them,—especially as a great deal of seed is saved by the process. It is worth while to spend £170 in labour to save £1,200 in seed; and, as we spend £300,000 in importing seed, the prospects of labour in the flax-producing department are well worthy of notice. When we have mentioned the itinerant classes of female agricultural labourers,—the hay-makers, reapers, and binders, and the hop-pickers, we have reviewed, in a cursory way, the whole of that division of female industry.—(*Edinburgh Review*.)

ALE would seem to have been the current name in England for malt liquor in general before the introduction of hops. This took place, according to Johnston ("Chemistry of Common Life"), as late as the reign of Henry VIII., about the year 1524.

As the use of hops was derived from Germany, the German name for malt liquor (*bier*) *beer*, was used at first to distinguish the hopped liquor from *ale*, the unhopped. The word *ale* had in all likelihood been introduced by the Danes and other Scandinavian settlers—for *öl* (allied probably to *oil*) is still the same for malt liquor in the Scandinavian tongues—and must have driven out the *beer* of the Anglo-Saxons, which that people had in common with the other Teutonic nations. As now used, *ale* signifies a kind of beer (*q. v.* and FERMENTATION), distinguished chiefly by its strength and the quantity of sugar remaining undecomposed. Strong ale is made from the best pale malt; and the fermentation is allowed to proceed slowly, and the ferment to be exhausted and separated. This, together with the large quantity of sugar still left undecomposed, enables the liquor to keep long without requiring a large amount of hops. The Scotch ales are distinguished for the smallness of the quantity of hops they contain, and for their vinous flavour. They are fermented at an unusually low temperature. The ales of Edinburgh and Prestonpans have a high reputation. Burton ale is the strongest made, containing as much as 8 per cent. of alcohol; while the best brown stout has about 6 per cent., and common beer only 1 per cent. India pale ale differs chiefly in having a larger quantity of hops.—(*Chambers's Encyclopædia*.)

RATS.—I tried the effect of introducing into the entrance of their numerous holes, or runs, hiding places, small portions of chloride of lime, or bleaching powder, wrapped in calico, and stuffed into the entrance holes, and thrown loose by spoonfuls into the drain from the house. This drove the rats away for a twelvemonth, when they returned to it, again treated in the same manner, with like effect. The cure was most complete. I presume it was the chlorine gas which did not agree with their olfactories.—(*American Gardener's Monthly*.)

TRADE LISTS RECEIVED.

A General Catalogue of Plants and Trees offered by Milne, Arnott and Co., Wandsworth Road, Fauxhall, London, is one of those nicely got up publications which are so characteristic of the best nursery and seed establishments of the present day, and contains, besides an enumeration of the articles offered for sale, a great deal of useful information respecting them. To the growers of Camellias this Catalogue will be particularly attractive, as emanating from a nursery so long celebrated for the cultivation of those magnificent plants. It contains, besides these, all the articles usually met with in the best nurseries.

TO CORRESPONDENTS.

ANTS (*H. T.*).—No further back than page 98 of the present volume we answered this question, and recommended guano for banishing them. We believe that ants are more useful than injurious to plants.

BOILER HEATED BY KITCHEN FIRE (*G. Chapman*).—We think that a plate of iron slid in between the fire and the boiler, so as to leave an empty space of about three inches, would suffice to prevent the water becoming more than slightly warm when not needed. If you interpose India rubber between the glass and the iron, we think there will be no danger of breaking. We answer thus promptly as you request, but have sent your letter to an authority whose answer you can await or not as you deem expedient.

MOWING MACHINES (*D. H.*).—They all do their work well. We should buy the smallest size, as it is to be worked by a man and a boy.

CUTTING OFF STRAWBERRY RUNNERS (*A. J.*).—We remove them from plants of ordinary vigour; but we allow them to remain, and prevent them rooting, if the plants are over-luxuriant. All such growths weaken the plants producing them. If the runners are pegged down early, they root soon, support themselves, and, consequently, weaken the parent plants less.

TOPSY VERBENA (*A. A.*).—It is in the catalogues of each of the chief London florists advertising in our columns.

MOTHERWORT (*J. Gipson*).—Yes, this plant *Leonurus cardiaca*, is a native of this country, and the nearest place recorded to you, where it is found is on a bank at Ditchingham, Norfolk. The leaves smell strongly, and taste bitter, something like Balm.

DIOSCOREA BATATAS (*An Amateur*).—You may either train the stems to sticks, or peg them down along the ground. If planted close together the first mode would be preferable.

PLANTS FOR AQUARIUMS (*An Old Subscriber, Ledbury*).—Be sure and put nothing but clean pebbles for the roots to work among. Earth or sand is worse than useless. The common weed in ponds, Star-wort (*Callitriche*), Water Ranunculus, Water Cress, and Flowering Rush (*Butomus*), will answer for both your aquariums. Water Plantain and *Vallisneria spiralis* may be added to those in that for mere ornament. If you refer to our Numbers 484 and 502, you will find full directions and drawings. Do not have too many animals in proportion to the plants.

MUSHROOMS (*T. J.*).—Your bed ought to produce Mushrooms. Water it with tepid rain water if it appears dry. It is not the red spider, but some acarus, or mite, that is in the dung. Tobacco water will kill them; and

so, probably, will guano sprinkled over their haunts. We think, if these applications fail, that you may try the Gishurst Compound without any well-grounded fear of "spoiling the hed."

BOOKS ON WILD FLOWERS FOR CHILDREN (A. Z.).—We have recently given for the purpose "of enabling children to recognise wild flowers when gathered, and not as scientific works," Tyas's "Wild Flowers of England," and one having a somewhat similar title, published by the Religious Tract Society. Both the works have coloured plates; and we know they enable the wild flowers to be recognised readily.

FIG SEEDLINGS (W. Whiteley).—They will bear fruit without being grafted.

ERRATA.—Page 124, 2nd column, line 9 from bottom, for "secretly" read "surely."

NAMES OF PLANTS (J. Kirkite).—Your pasture plant is *Hydrocotyle vulgaris*. (W. G., Guernsey).—Your bulb is an excellent variety of *Tritonia rosea*. (M. D. P.).—*Cerintho major*, or Honeywort; an excellent bee flower. (E. Copland).—Your shrub is not *Mespilus Canadensis*, indeed we know of none so named, but *Pyrus arbutifolia*. The other plant is *Piptanthus Nepalensis*, a shrub nearly hardy, and well suited to a conservatory wall. (Rose).—We never knew until now that your plant is night-scented. It is not a Heath, but the Flax-leaved *Gnidia*, *Gnidia simplex*. The accompanying plant is not the Spargula, but the Mossy Saxifrage, *Saxifraga hypnoides*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

JUNE 6th, 7th, and 8th, 1859. GLASGOW. Sec., Robert M'Cowan, 17, Gordon Street, Glasgow.

JUNE 16th. ESSEX. Sec., Robert Emson, Haldstead, Essex. Entries close June 1st.

JUNE 29th and 30th. NEWCASTLE-ON-TYNE. Sec., Mr. W. R. Pope, 44, Westgate Street.

JULY 1st, 2nd, 4th, and 5th. SHEFFIELD. Sec., Wm. H. Dawson, Sheffield. Entries close the 15th of June.

JULY 21st. PRESCOT. Sec., Mr. James Beesley, Prescott.

AUGUST 27th. HALIFAX. Sec., William Irvine, Holmfild, Ovenden, near Halifax.

AUGUST 29th, 30th, 31st, and SEPTEMBER 1st. CRYSTAL PALACE. Poultry, Pigeons, and Rabbits. Sec., William Houghton.

SEPTEMBER 22nd. BRIDGNORTH. Sec., Richard Taylor, Bridgnorth.

OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. Sec., Geo. Griffiths, 7, St. Swithin Street, Worcester.

N.B.—Secretaries will oblige us by sending early copies of their lists.

SUMMER-HATCHED CHICKENS.

THERE is an old proverb in some parts of the country that summer chickens never thrive. It runs thus in parts of Hampshire:—

"Chicks that are hatched when there's making of hay
Will never grow up, but pine away."

There is something so discouraging, when misfortune has happened to the anticipated May chickens, in the idea that the season is passed, and that there is no remedy but patience, that we are disposed to offer comfort to those so situated.

All those who wish to rear poultry without much trouble choose the month of May for doing so. Sometimes a hen deserts a few days before hatching; sometimes she is driven off her nest; sometimes she dies upon it. If we listen to the above tradition there is no remedy. But we believe there is, and a simple one: set more eggs, and be not deterred by fables. We go on hatching till August, and we are successful. The London market is only supplied by this process with the poultry for which it is so justly celebrated. Fowls of the same age can be had all the year round, because the work of hatching never ceases. If we were about to tell such of our readers as require instruction on the subject, that any expensive or very troublesome process was necessary, they might, perhaps, say, that, of two troubles, they thought waiting was the less. But it is not so; and, we confess, it seems to us that the idea can only be supported by that undeniable argument—"I do not know how it is, but I know that it is so." Another large class of poultry breeders say they do not believe in the saying; but June is too late for chickens. It is wonderful what a bore a man becomes to great talkers, who, of necessity, deal largely in assertions, if he makes a rule of saying only "Prove it." Many a man who prides himself on his veracity, and who is a truthful man, will be surprised to find how much of his conversation is derived from his own or other people's imagination. Well, if you say it is too late, we say—"Prove it." The nights are shorter in June than in May: the weather is warmer. Nearer to the winter, you say; but you have four months to the end of October, all good growing genial weather, and, at that age, your chickens will stand anything.

They are three weeks or a month later, and that is all. It may be said there must be some foundation for the proverb: so there is. The sun is too hot and scorching, and if chickens are entirely exposed to it they will die. Put the rip, with the hen in it, in a shady place, but near the sun. As in April you gladly turn it to the sun wherever you can find it, so in June turn it away. Let it be near covert for the chickens, shrubs, artichokes, peas, anything that produces shade, and harbours insects. You will find your chickens live there a great part of the day, and always when the sun is most powerful. They find there the insects that have deserted the parched grass. Let them be well and frequently supplied with fresh and cool water. If you can do it, or have it done, you will find a great advantage in having a few pails of water scattered every evening on the ground they use in the day. It freshens it, and keeps it cool. To sum up: give your chickens shade, clean and cool water, with a run affording them covert; and, we promise you, you shall say and prove that the prejudice against June chickens is a popular error.

BATH AND WEST OF ENGLAND POULTRY SHOW.

THIS Exhibition took place at Barnstable on the 1st, 2nd, and 3rd inst. The Judges were G. Andrews, Esq., Dorchester, and E. Hewitt, Esq., Birmingham, for Poultry; and W. Cottle, Esq., Cheltenham, for Pigeons; the following were their awards:—

SPANISH.—First, Master M. Rake, Brandon Hill, Bristol. Second, W. Bailey, Pleasant Place, Lower Kensington Lane, London. Third, G. Morgan, 12, Esk Terrace, Whitby, Yorkshire. Highly Commended, J. K. Fowler, Prebendal Farm, Aylesbury, Bucks. Commended, Mrs. H. Fookes, Whitechurch, near Blandford, Dorset.

DORKING (Coloured or White).—First, W. Bromley, Smithfield, Birmingham. Second, Mrs. H. Fookes, Whitechurch, near Blandford. Third, G. Botham, Wexham Court, Slough, Bucks. Highly Commended, Mrs. H. Fookes, Whitechurch. Commended, Rev. G. De C. Guille, Rectory, Torrington; C. H. Wakefield, Malvern Wells, Worcestershire; F. J. Coleridge, Manor House, Ottery St. Mary.

COCHIN-CHINA (Cinnamon, Buff, or Lemon).—First, H. Tomlinson, Balsall Heath Road, Birmingham. Second and Third, Mrs. H. Fookes, Whitechurch, near Blandford. Highly Commended, E. W. Fryer, Hinton Road, Hereford. Commended, H. F. Wells, Aldbro' Hatch, Ilford, Essex.

COCHIN-CHINA (Brown, Partridge, and Grouse, White or Black).—First, Mrs. H. Fookes, Whitechurch, near Blandford. Second, J. Cattell, Worcester Street, Birmingham. Third, C. Felton, Erdington, near Birmingham.

GAME (Whites and Piles, Blacks and Brassy-Winged).—First, W. Dawson, Selly Oak, Birmingham. Second, Rev. G. S. Cruwys, Cruwys Morchard Court, Tiverton. Third, F. Sabin, Bull Street, Birmingham. Highly Commended, W. Ballard, Bragg's Farm, Hockley Heath, near Birmingham; T. W. Jones, Portland Cottage, Wellington, Salop.

GAME (Black-breasted and other Reds).—First, W. D. Draginton, Knapp, Bideford. Second, G. W. Moss, the Beach, near Liverpool. Third, Rev. G. S. Cruwys, Cruwys Morchard Court. Highly Commended, Rev. G. S. Cruwys, Cruwys Morchard Court, Tiverton; J. W. House, Anderson, Blandford, Dorset; W. Dawson, Selly Oak, Birmingham; J. Camm, Farnsfield, Southwell, Notts; W. Buncombe, Stowford Villa, Chittlehampton, Devon; Commended, H. Dunn, Southmolton, Devon.

GAME (Duckwings and other Greys and Blues).—First, Rev. G. S. Cruwys, Cruwys Morchard Court, Tiverton, Devon. Second, W. Ballard, Bragg's Farm, Hockley Heath, near Birmingham. Third, J. B. Chune, Coalbrookdale, Salop.

MALAY.—First, A. G. Brooke, Woodbridge, Suffolk. Second, C. Ballance, Mount Terrace, Taunton. Third, J. Buncombe, Wellington, Somerset. Highly Commended, J. Leighton, Cheltenham. Commended, J. Rumsey, Shadwell, London; J. Leighton, High Street, Cheltenham.

HAMNURGH (Golden and Silver-pencilled).—First and Third, T. Keable, Rowdefield Farm, Devizes, Wilts. Second, W. M. Lilly, Moneyhill Hall, Kingsnorton. Highly Commended, J. B. Chune, Coalbrookdale, Salop. Commended, J. Bennett, North Nibly, near Dursley; W. Withington, Devizes, Wilts.

HAMNURGH (Golden and Silver-spangled).—First, R. Lane, Bristol Road, Birmingham. Second, J. B. Chune, Coalbrookdale. Third, J. Camm, Farnsfield, Southwell, Notts. Highly Commended, J. B. Chune, Coalbrookdale. Commended, G. Chadwin, Tollard Royal, Salisbury, Wilts.

POLANDS (Black, with White Crests).—First, T. P. Edwards, Lyndhurst, Hants. Second, G. Ray, Ivy Cottage, Minstead, Lyndhurst, Hants. Third, G. S. Fox, the Court, Wellington, Somerset. Highly Commended, G. S. Fox, Wellington, Somerset. Commended, G. Ray, Minstead, Lyndhurst, Hants.

POLANDS (Golden and Silver-spangled).—First, G. C. Adkins, the Lightwood, Birmingham. Second, R. W. Fryer, Hinton Road, Hereford. Third, G. S. Fox, Wellington, Somerset.

ANY VARIETY NOT COMPRISED IN THE BEFORE-MENTIONED CLASSES.—First, Miss S. H. Northcote, Upton Pyne, near Exeter. Second, J. B. Snell, Southmolton, Devon. Third, J. K. Fowler, Prebendal Farm, Aylesbury. Highly Commended, W. Ley, Fremington, North Devon. Commended, E. Carlyn, St. Austell, Cornwall; — Lee, Bishop's Hull.

SPANISH CHICKENS.—First and Third, J. R. Rodbard, Aldwick Court, Langford, near Bristol. Second prize withheld.

DORKING CHICKENS.—First, W. Bromley, Smithfield, Birmingham. Se-

cond, G. Chadwin, Tollard Royal, Salisbury. Third, C. H. Wakefield, Malvern Wells. Highly Commended, Rev. G. de C. Guille, Torrington.

GAME (of any variety).—Prizes withheld in this Class.

COCHIN CHINA CHICKENS.—Second, Mrs. H. Fookes, Whitechurch, Blandford. First and third prizes withheld.

BANTAMS (Gold-laced).—First, Rev. G. F. Hodson, North Petherton, Bridgwater. Second and Third, Rev. G. S. Crnwys, Crnwys Morehard Court. Highly Commended, T. H. D. Bayley, Ickwell House, near Biggleswade, Bedford.

BANTAMS (Silver-laced).—First, Rev. G. S. Crnwys, Crnwys Morehard Court. Silver Cup awarded also to this pen. Second, Miss Bailey, the Elms, Hartley Row, Hants. Highly Commended, Rev. G. F. Hodson, North Petherton.

BANTAMS (White and Black).—First, Rev. G. S. Crnwys, Crnwys Morehard Court. Second, J. Cattell, Worcester Street, Birmingham. Third, W. M. Lilly, Moucehill Hall, Kingsnorton. Highly Commended, Rev. G. S. Crnwys, Crnwys Morehard Court.

BANTAMS (any other variety).—First, T. H. D. Bayley, Ickwell House, near Biggleswade. Second, J. Camm, Farnsfield, Notts. Third, Rev. G. S. Crnwys, Crnwys Morehard Court. Commended, J. Edwards, Mapplebeck, Birmingham.

DUCKS (White Aylesbury).—First and Second, J. K. Fowler, Prebendal Farm, Aylesbury. Third, B. J. Ford, Ide, Exeter.

DUCKS (Rouen).—First, J. K. Fowler, Prebendal Farm, Aylesbury. Second, J. R. Rodbard, Aldwick Court, Langford, near Bristol.

DUCKS (any other variety).—First, J. B. Chune, Coalbrookdale, Shropshire (Brown Call). Second, G. S. Sainsbury, Rowdefield Farm, Devizes (East Indian). Highly Commended, J. K. Fowler, Prebendal Farm, Aylesbury, Bucks (East Indian).

GRESE.—First, J. K. Fowler, Prebendal Farm, Aylesbury. Second, Mrs. H. Fookes, Whitechurch, near Blandford.

TURKEYS.—First, Miss J. Milward, Newton St. Loe, near Bath. Second, Mrs. H. Fookes, Whitechurch, near Blandford.

GUINEA FOWLS.—First, H. Adney, Lymptone, Devon. Second, W. D. Braginton, Knapp, Bideford. Commended, H. Adney, Lymptone, Devon.

PIGEONS.

CARRIERS (Duns or Blacks).—First, S. Summerhayes, Fore Street, Taunton. Second, G. C. Adkins, the Lightwood, Birmingham.

CARRIERS (Blue, White, or other Colour).—Prize, S. Summerhayes, Fore Street, Taunton.

TUMBLERS (Almond).—Master M. Rake, Brandon Hill, Bristol. Second, G. C. Adkins, the Lightwood, Birmingham.

TUMBLERS (any other variety).—First, Master M. Rake, Brandon Hill, Bristol. Second, S. Summerhayes, Fore Street, Taunton. Commended, W. C. Hodge, Pounds House, near Plymouth.

POWTERS.—First, Master M. Rake, Brandon Hill, Bristol. Second, G. C. Adkins, the Lightwood, Birmingham. Commended, S. Summerhayes, Fore Street, Taunton; H. Child, jun., Sherbourne Road, Birmingham.

RUNTS.—First, H. Child, jun., Sherbourne Road, Birmingham. Second, P. H. Jones, High Street, Fulham.

JACOBS.—First, Master M. Rake, Brandon Hill, Bristol. Second, J. Baily, jun., Rosemary Farm, Blackwater, Hampshire. Highly Commended, G. C. Adkins, the Lightwood, Birmingham. Commended, W. C. Hodge, Pounds House, near Plymouth.

FANTAILS.—First, Miss J. Milward, Newton St. Loe, near Bath. Second, G. C. Adkins, the Lightwood, Birmingham. Highly Commended, J. Baily, jun., Rosemary Farm, Blackwater, Hampshire. Commended, S. Summerhayes, Fore Street, Taunton.

OWLS.—First, G. C. Adkins, the Lightwood, Birmingham. Second, Master M. Rake, Brandon Hill, Bristol. Highly Commended, G. C. Adkins, the Lightwood, Birmingham.

TRUMPETERS.—First, G. C. Adkins, the Lightwood, Birmingham. Second, J. Baily, jun., Rosemary Farm, Blackwater. Commended, J. E. Mapplebeck, Moseley Road, Birmingham.

BARBS.—First, Master M. Rake, Brandon Hill, Bristol. Second, J. Baily, jun., Rosemary Farm, Blackwater. Commended, P. H. Jones, High Street, Fulham.

TURBITS.—First, G. C. Adkins, the Lightwood, Birmingham. Second, P. H. Jones, High Street, Fulham.

NUNS.—First, G. C. Adkins, the Lightwood, Birmingham. Second, Master M. Rake, Brandon Hill, Bristol. Commended, J. E. Mapplebeck, Moseley Road, Birmingham.

DRAGOONS.—First and Second, G. C. Adkins, the Lightwood, Birmingham.

BLUE ROCKS.—First, Miss S. H. Northeote, Upton Pynce, near Exeter. (Second withheld.)

ANY OTHER NEW OR DISTINCT VARIETIES.—First, J. Baily, jun., Rosemary Farm, Blackwater. Second, S. Summerhayes, Fore Street, Taunton. Commended, G. C. Adkins, the Lightwood, Birmingham; P. H. Jones, High Street, Fulham.

Most of the Classes were very meritorious.

We shall publish our comments next week.

BEVERLEY AND EAST RIDING OF YORKSHIRE POULTRY SHOW.

THE Meeting just concluded is the second annual Exhibition of this Society; and, without doubt, no Poultry Show was ever better conducted. The sole management was carried out by Messrs. Boulton and Calvert, to whom the greatest credit is due

for the unremitting attention paid by them to all its details. Few towns have so commodious and well-ventilated a building for the holding of a Poultry Show as Beverley; the Assembly Rooms possessing to perfection that ever-essential requisite—light, combined with freedom from draughts of any kind.

The arrangements this year were much more attractive than those of last season, from the kind permission granted by Charles Reynard, Esq., to open a temporary way into his extensive grounds through the outer wall of the Exhibition-room. This additional treat seemed highly valued by the visitors generally, more particularly the ladies. The grounds, which are finely wooded and park-like, proved quite a promenade. A band of music was stationed in the distance; whilst a refreshment-tent, of ample dimensions, afforded the greatest variety of edibles to those who from distant journeys required them.

All the water fowl and extra stock were exhibited under a tent in these grounds, and very rarely have we seen these classes so well represented. The *Geese* were extraordinarily good; and the collection of *Ducks* was equally so. Among the *Ducks* in the extra class, none proved so attractive to visitors as a trio of the Shell Duck, or Burrow Duck, exhibited in plumage that could not be bettered even in a wild state. They were remarkably tame, so much so, as to feed from the hand; whilst the striking contrast between them and the *Labradors* adjacent perhaps tended to show them to even still greater advantage. Several pens of first-rate *Turkeys* were also here exhibited.

The Assembly Room itself proved as gay as banners could make it. A fountain at the upper end of this room played continuously; whilst a whole troop of *Canaries*, hung among the foliage that surrounded it, whistled all day most merrily.

The *Spanish* classes were of unusual merit, as were likewise the *Grey Dorkings*. The *Cochins* were very good; but the *Brahmas* fell far short of even mediocrity. The *Game* classes were the most prominent feature of the Exhibition, their numbers being the greatest of any classes as to entries, whilst their perfection, as a whole, was remarkable. The *Hamburgs* of all varieties were very good; but the *Sebright Bantams* possessed very little merit; some perfect white, black, and also *Game Bantams*, however, made ample amends for this unlooked-for deficiency. Among the *Malays* were shown a pen of white ones, decidedly the best we remember to have seen anywhere. The *Polands*, though limited in numbers, were unexceptionable.

It is pleasing to find so great an advancement on the Meeting of 1858; and there appears every probability that this progress will extend itself to future Meetings, the Beverley Show being well supported and personally visited by the surrounding gentry.

Mr. Hewitt, of Spark Brook, Birmingham, officiated as the Judge, and expressed himself "unable to suggest any improvement in the arrangements." All the poultry was promptly returned at the close of the Exhibition.

NOTES ON BEESWAX, HONEY, AND POLLEN.

1. THAT "bees obtain the materials from plants to secrete wax," is not a correct way of putting Mr. Wighton's peculiar notions on this subject. As stated in the above words, it is no more than the orthodox belief of every apiarian. However, we all know that Mr. Wighton means that bees collect wax from plants, and import it as a ready-prepared substance into their hives;—his view, in short, being that the wax, of which honeycomb is made, is a *vegetable*, and not an *animal* secretion. This is where I believe he joins issue with the whole world of naturalists, whether apiarians or not,—not excepting even Mr. Taylor, upon whom he seeks to father this "new theory" about beeswax. For, on referring to the last edition of that gentleman's work on bees, I find, at page 103, the following words:—"The material of which the combs are so curiously formed is wax, secreted by bees themselves, and not any substance directly conveyed into the hive, as is erroneously supposed. To enable them to form this secretion, the workers must have access to some saccharine matter." A little later he quotes as follows from Kirby and Spence, in corroboration of his view:—"To see the wax-pockets in the hive-bee you must press the abdomen, so as to cause its distention; you will then find on each of the four intermediate ventral segments, separated by the carina or elevated central part, two trapeziform whitish pockets, of a soft, membranaceous texture; on these the laminae of wax are formed, in different states, more or less perceptible." Mr. Taylor next quotes from Dr. Bevan, in corroboration of the same fact, who,

after stating to the same effect as Kirby and Spence, that "the wax is secreted, and may be seen in laminae, under the abdominal scales," adds, "*whence it is removed* by the hind legs of the bee and transferred to the fore legs; from them it is taken by the jaws, and after being masticated, the fabrication of comb commences." This was Mr. Taylor's deliberate judgment on the subject in 1855, since which time he may, of course, have changed his mind; but, if so, we have no statement in proof of it from that gentleman himself. And I will venture to say that when he does see fit to expunge the above quotations from his "Manual," he will put forth good and scientific *reasons*, founded on well-ascertained facts, for his change of opinion.

2. With regard to Gundlach, I have no where called him an "eminent German apiarian," as Mr. Wighton states, or even seemed to do so; for the simple reason that I was entirely unacquainted with his writings till "A DEVONSHIRE BEE-KEEPER" favoured us with some extracts from his works. I state this in order to guard myself against being supposed to endorse all that he may have written about bees. Nevertheless, I should have no hesitation in endorsing as a statement of fact, coinciding with my own observations, that "bees often starve in April, when their stock of honey is consumed, and when they can obtain in the fields abundance of pollen, but no honey." And I am sure I may confidently appeal to all bee-keepers (not being "novices in botany or in bee-keeping"), in corroboration of this statement of Gundlach. Who has not seen pounds and pounds of pollen carried into their hives by the industrious insects at the very time their stores of honey were visibly decreasing, from day to day? Is it credible, that if honey were to be procured in the field, they would be slow to bring it in as well as pollen? The instinct of self-preservation, which leads all living creatures to seek their food, is surely no less strong than the instinct which leads them to nourish their young. It appears to me that I might well retort upon Mr. Wighton his own remark as applied to Gundlach, that "the thing is too absurd to comment upon;" and I much wonder at the hardihood which sets up to be a teacher of others in matters which are evidently *res incognitæ* to the teacher. Till now I had thought apiarians were unanimous in the belief that honey is produced in quantity only in certain states of the atmosphere,—as, for instance, in warm, moist, or sultry weather,—whereas, in cold weather, however fine, that substance is secreted in very small quantities, *if at all*; at the very time there may be a million flowers in full bloom, inviting the little pollen-gatherers into the fields.

3. It is for Mr. Wighton to prove his statements, which, in so many respects, are new to bee-keepers. This he has declined doing. When I declared myself "not satisfied" with his new theory "on bees secreting wax," his reply (at page 11 of this volume of THE COTTAGE GARDENER) was this—"Were I to write so (that is, scientifically), perhaps I might be less understood."

4. While on this subject, I may mention that I have lately watched a great number of bees on laurel bushes, when each bee confined itself to the use of its tongue, which it passed hastily along the ribs of each leaf in the hollows at the back of the leaves, licking up the substance, whatever it might be, which attracted it. Some of these leaves I tasted, and fancied I detected a sweetness not unlike sugar or honey. I observed that the bees preferred those of the young leaves, which were more or less imperfect. Here the tongue lingered some time. Also I noted some ants wandering over the young shoots; and am inclined to think that some aphids, or other insect, must have punctured the leaves, and so caused a sweet exudation to flow; or possibly left some of its excrement behind, as in the case of honey-dew, which is generally supposed to be the excrement of aphides. It is well known that ants regularly attend upon these insects, and, as it were, compelled them to give out their secretions by squeezing or "milking" them. I should be glad to know if any of your other readers have had their eyes upon the laurels this season. Scientific truth can only be arrived at by frequent and patient observation on the part of many eyes.—B. & W.

P.S.—Since writing the above, and on the same day (May 26), at 10.35 A.M., the sun shining brightly, and honey secretions being, I doubt not, abundant, I have just come in from a fresh observation of the laurels in my garden. Many bees are at work, but I see no signs of ants or aphides; but it is plain to see at the backs of most of the young leaves, more or less, minute patches of moisture—several patches on every leaf. The bright sunshine makes these to glisten very perceptibly. I also continue, as I think, to detect a saccharine sweetness on applying the tongue

to the leaves. I therefore incline to the opinion that bees are in search of honey on the laurels, at least at this season of the year; and that this honey is a natural exudation or secretion of the plant itself, and not, as I suggested above, the deposits of aphides. What I have written, however, I let stand, as it may quicken our naturalist friends to help forward a decision of this still-open question.

THE BEE SEASON.

IN my last communication a month ago, I mentioned the probability of a late arrival of north-easterly winds during this month. My bees have lately received a sudden check; violent gales from the named quarter have caused the death of great numbers from the most populous hives; and, more than once, drones have been taken from their cells before maturity, and cast out of the hives!

The latter (the drones) appeared in great numbers in April, and the prospect of early swarms going forth seemed imminent; but the late cold winds and frosty nights have blighted the hopes of a prolific bee time; and I much fear we are not to have another "splendid summer" to add to those *three* last which have passed.

The bees were breeding fast at the end of February; as I observed them, then in great numbers, in search of water, which caused me to fill the trough earlier than usual.

By the middle of March the gooseberries were in blossom; and on the 24th of April, in sheltered, warm soils, the white hawthorn was fully in bloom also. This is about fourteen days earlier than I ever saw it. Notwithstanding all this, it appears probable that the bee year of 1859 will prove a very uncertain and showery one. My average of *good* seasons for the thirty years is about one in three; but many neighbourhoods are hurt from being overstocked, and hence arises an outcry without real occasion. I hope your next Number will announce some new swarms. These premature springs seldom benefit bees.—H. W. NEWMAN.

OUR LETTER BOX.

YOUNG PARTRIDGES, BEST FOOD FOR.—In answer to "K. R. G.," at page 114, you name the best food for these young birds (and Pheasants also); but there is one omission, and that is a material one—ants' or emmetts' eggs, as they are styled in Gloucestershire. For many years I was a game preserver, and when nests were cut out by mowers a man in my employ used to search every day for the ants' nests. There is no food of which these birds are fonder in June and July. You may add various species of maggots.—H. W. N.

TOP-KNOT OF WHITE-CRESTED BLACK POLANDS.—"The question at issue is, should they be close-crested or loose-crested? Last year I particularly noticed that the prizes were given to looser-crested birds than either Ray's or Edwards's birds. Theirs are not only large-crested but close and firm when compared to either Dixon's or Battye's. I must say that those I examined of Ray's birds last year had handsomer heads than I ever saw at any previous exhibition; but generally they run second to Dixon's and Battye's, owing, I presume, to the crests of Battye's and Dixon's being a little larger but loose."—JAMES WILLIAMS.

[We always feel some diffidence in answering such a question as you put; because we can only give our own opinion, and Judges are not in any way bound by it. It is, however, certain that fowls must be judged as a whole; and the closest top-knot possible will not ensure a prize if other qualities are wanting. The best information we can give will be to describe what we consider good top-knots for this breed. As large and close as possible. Size will not carry a loose one to success, nor closeness a small one. The shape should be as much like a cauliflower as possible, and it should be firm and well fixed on the head. The feathers forming it should all turn inwards. The top-knot is not the only point. The birds must be quite black and quite straight; good, also, in every other point.]

ROUP (*An old Subscriber*).—It is very unusual for Cochins, either chickens or adults, to have roup; but there is no gallinaceous constitution can stand against east winds, wet weather, and irregular or bad feeding. Discontinue rice and potatoes—nothing can be worse for chickens; and when the elements are so unfavourable as they have been of late, chickens want the best of everything. In this instance they sometimes were doubtless empty, and then they feed greedily. This would cause sickness and predispose to cold. Turkeys would catch it directly. We would not advise you to kill all; but destroy those that are evidently sinking from disease, and remove the Turkeys from the chickens; put them as far apart from each other as it is possible; continue your feeding, with the exception of rice and potatoes; do not spare bread and ale; give them roast meat chopped up, and put some wormwood in their water. Put them near the sun, but not in it; and save the strong by sacrificing every one that shows weakness or infection. This answer will serve also *North C. Subscriber*. His game fowls have the roup.

BROWN SUBSTANCE IN EGG YOLKS (*Ovum*).—That of which you complain is generally the effect of using stimulants too freely. The organs become deranged. There is no doubt it is caused by inflammation, and cooling food is the cure. Nothing better than lettuces. Avoid feeding on whole corn, and give meal rather sparingly.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	JUNE 14—20, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon R. and S.	Moon's Age.	Clock after Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
14	Tu	WHIT TUESDAY.	29.879—29.850	91—51	S.E.	—	44 af 3	15 af 8	13m.2	13	0 11	165
15	W	EMBER WEEK.	29.961—29.877	94—56	S.	—	44 3	16 8	rises	☺	0 bef.2	166
16	Th	Epacris miniata.	29.885—29.781	97—53	W.	.03	44 3	16 8	59 a.9	15	0 14	167
17	F	Lambertia echinata.	29.878—29.742	78—42	S.	—	44 3	17 8	20 10	16	0 27	168
18	S	Caleonema alba.	30.007—29.993	75—40	N.W.	—	44 3	17 8	41 10	17	0 40	169
19	SUN	TRINITY SUNDAY.	30.088—30.084	81—46	S.W.	.01	44 3	18 8	57 10	18	0 53	170
20	M	QUEEN VICTORIA ACC.	30.157—30.085	80—42	S.W.	.02	44 3	18 8	10 11	19	1 6	171

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 72.0° and 49.4°, respectively. The greatest heat, 93°, occurred on the 19th, in 1846; and the lowest cold, 30°, on the 15th, in 1850. During the period 106 days were fine, and on 108 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

THE stock of plants out of doors to be carefully looked over in showery weather that they may not suffer from imperfect drainage. The more delicate sorts to be returned to the houses, or protected by some means during heavy rains.

CAMELLIAS.—When they are kept in-doors give an abundance of air night and day, with an occasional application of the syringe, keeping the paths and floors damp. When they have ceased growing, and have formed their flower-buds, discontinue to syringe the plants overhead, as it sometimes starts them into a fresh growth that will be the destruction of the flower-buds.

CHRYSANTHEMUMS.—Plant them out eighteen or twenty inches apart in an open piece of ground. Some to be left to grow as standards on one stem, and others to be topped, to make them bushy.

CINERARIAS.—In raising seedlings it is advisable to select each parent plant, distinguished for its dwarf habit and decided colour, and to place them by themselves in a pit or frame. The seed should be carefully gathered as it ripens. It should be sown in shallow pots, or pans, well drained with crocks; then some siftings, and over that some light soil, with some finer and more sandy on the surface, covering the seeds very lightly with the same; and slightly sprinkling, or watering, through a very fine rose, and the surface covered with a little moss, to prevent evaporation. In a few days the seedlings will be up; then remove the moss, and let them remain in the pots, or pans, until they are large enough to be handled with safety; then pot them in small pots, and keep close for a day or two.

LILUM LANCIFOLIUM.—Give attention to them; as also to tree Carnations, *Salvia splendens*, Scarlet Geraniums, &c., for autumn and early winter flowering.

ORANGES.—The same as advised for *Camellias*.

STOVE AND ORCHID-HOUSE.

ACHIMENES.—Repot, as also *Begonias* and *Gesneras*, for succession of late bloom.

LUCULIA GRATISSIMA.—Propagate by cuttings.

Some of the Orchids will now require to be topped up a little with fresh soil. The *Barkeria spectabilis*, *Epidendrum Skinneri*, the *Lycastes*, *Odontoglossum grande*, &c., will now enjoy the temperature of the conservatory.

FORCING-HOUSE.

FIGS.—Continue to stop all shoots when five or six joints long. Never allow the trees in tubs, or pots, to want for water; they now require daily attention.

MELONS.—Shade them during bright sunshine for a few hours in the middle of the day. If the red spider appears, rub sulphur vivum, mixed with water, on slates or tiles, and place them in the pit, or frame, where the sun's rays may fall upon them.

PEACHES.—Admit plenty of air when the fruit is ripe, No. 559.—VOL. XXII, No. 11.

or nearly so. When the crop is gathered, give them a good washing with the syringe. Those changing for ripening, if the trees are young and vigorous, to have a general stopping of the strong shoots all over the higher parts of the tree. To keep down red spider, it is advisable to wash the walls, pipes, or fines, with sulphur vivum reduced to the consistency of paint; or to paint some slates, tiles, or common saucers, with the mixture, and to place them in different parts of the house, where the sun can shine upon them.

PINES.—If the pot plants in fruit are in a healthy condition, well furnished with roots, an occasional supply of clear manure water, in a warm state, may be given with advantage to them.

STRAWBERRIES.—As it is necessary, by early attention, to ensure a healthy, vigorous growth, therefore, as soon as the runners have emitted the least portion of root, take them off, and prick them out on a rich piece of ground, or on an old hotbed where Radishes or early Potatoes have been grown under hoops, where, when the weather is hot, they are more convenient to shade, and require less water.

VINES.—When the fruit is cut in the early houses, ripen the wood by exposing it night and day, except during heavy rains. Water to be gradually withheld as the growth of the plants declines, and somewhat in the proportion in which you would have vegetation stop, not all at once, but gradually. The Vines with fruit now stoning may be allowed to produce a few redundant shoots if there is sufficient room to lay them in without crowding, or overlapping the old wood, or shading the old leaves. The late Grapes to be finally thinned, their shoulders to be tied out, and every useless shoot to be removed. Keep the Vines in pots trained, and exposed to light, and apply weak liquid manure frequently.

WILLIAM KEANE.

CRYSTAL PALACE HORTICULTURAL SHOW.

JUNE 8TH.

A most lovely day, a splendid exhibition, and a first-rate company dressed in the highest style of summer fashions. Several ties tell their own tale for an exhibition, and for the liberality of the Society which allows, and even encourages, such close competition as must occasionally end in ties. Flower Shows must, of necessity, lead to matrimonial ties; but such are not the ties to be publicly reported to-day. When two or more competitors come in so close for a given prize, that the Judges cannot make out who is first and who second, it is "a tie," and the first two get the same prize. The highest award at the Crystal Palace is £25, and two of the first exhibitors of the day, Mr. Dods and Mr. Whitbread, were so much on a par with their large collections of stove and greenhouse plants in bloom as to make a tie of them; and the Crystal Palace Company doubles the prize with right good will, and so with other ties down through the schedule. But how would it do to double the prizes in ties between cloth and crinoline? Or how would it

answer to tie the right hand of a reporter and the left hand of a reviewer on such a day as this? I would not tie my little finger for all the societies and for all the exhibitors in the three kingdoms.

The Judges at the Crystal Palace say they have no share or sympathy in the game of "hide-and-seek," about turning the cards on which the names of the exhibitors are written, while the plants are being judged. They, the Judges, say it is most absurd to do so; but some of the exhibitors will have the cards turned; and unless nurserymen will break through the rule, and let their names be seen by their humble servant, he will not be "tied" to say if they had prizes for their new plants.

But about the ties. Mr. Dods, gardener to Sir J. Cathcart, Bart., and Mr. Whitbread, gardener to H. Colyer, Esq., Dartford, came to a tie with two first-rate collections of stove and greenhouse plants in bloom. Mr. Dod's plants were more artistically placed, and consisted of a splendid *Ixora salicifolia* for a key plant in the centre of the group. On one side of it stood an Everlasting (*Aphelaxis*), and, to match that, *Erica tricolor Wilsoni* on the other side in front of them; and in the front row another Everlasting, cross-corner-wise with the first Everlasting, and a white *Vinca*, crossed with the said light Heath. Then spreading out and rising higher from the key plant were noble, and most noble, and honourables in the way of Azaleas, Eriostemons, Boronias, Pimeleas, Allamandas, Polygalas, and the blue *Leschenaultia*. Mr. Whitbread's were not such big monsters of specimens as his employer used to bring up against Mrs. Lawrence at Chiswick, and all the better for that. Some plants in both these collections are just at the limits of the size at which prizes should cease. *Rondeletia speciosa*, two Allamandas, *Ixora Javanica*, Vincas, Heaths, Eriostemons, Polygalas, Pimeleas, Chorozeas, a fine *Dipladenia crassinoda*, Polygalas, and Everlastings, made up the collection from Mr. Whitbread.

The second prize of £15 was also a tie between Mr. Green and Mr. Peed. These four collections of eighty specimens made a grand display; for the plants were set far better than the common run, and the setting is one-half the battle. Mr. Green's collection was more various, as *Hoya bella*, *Tetratheca verticillata*, *Elichrysium proliferum*, *Porphyrocoma* and *Franciscea* were in addition to such as are mentioned above. Mr. Peed had a fine specimen of the most difficult plant at this Show to do well, the *Leptodactylon Californicum*, thirty inches above the pot, and as much, or more, across. What a lovely colour for a bed under glass! Also a white *Ixora* and a *Dracocephalum gracile* different from the rest. Mr. Page, gardener to W. Leaf, Esq., Streatham, was third in twenties, *Hederoma tulipifera* being only different from the rest; and an extra prize for twenty to Mr. Baxindine, gardener to W. H. Smallpiece, Esq., Guildford, who had the best specimen yet exhibited of *Acerophyllum venosum*. It was over four feet by four feet. *Clerodendrum Kampferi*, and a *Stephanotis* were different from those above him.

The next collections were in twelve stove and greenhouse plants in bloom. Here Mr. Rhodes, Stamford Hill, was first; and the only plant with him different from the above was a fine *Cyrtoceras reflexa*—a *Hoya*-looking flower. Mr. Peed, of Streatham, was second with the same kinds and style of plants; and Mr. Cutbush, of Barnet, came up as a nurseryman for a prize in this class. He had the best-bloomed plant I ever saw in a pot of *Combretum purpureum*, a fine *Dipladenia crassinoda*, Allamanda, *Stephanotis*, *Adenandra fragrans*—the rest as above.

The next were in sixes; and Mr. Chilman, Epsom, was first with Polygala, *Stephanotis*, Everlasting, Pimelea, Epacris, and *Erica Cavendishii*. Second, Mr. Smith, gardener to A. Anderson, Esq., Norwood, who had a good yellow *Ixora*, a blue *Leschenaultia*, *Rhynchospermum jasminoides*, *Stephanotis*, *Tetrathoca*, and Everlasting. Third, Mr. Carson, who had a very good Azalea *Apollo*, Allamanda, *Rhynchospermum*, *Pimelea Hendersonii*, Poly-

gala, and Everlasting. An extra prize to Mr. Hamp, who had *Mitrasia coccinea* different from those above; and a fourth prize to Mr. Tegg, who had a large purple Azalea, and the old *Leschenaultia formosa* different.

Mr. Summers, of "new Grass" celebrity, had a very interesting collection, in which were *Callicoma serratifolia*—the first I ever saw exhibited, a fine old thing, a New Holland shrub, with white balls of stamens in large spreading clusters; *Leptospermum bullatum*, *Clerodendrum Kampferi*, *Hoya carnosa*, and *Diplacus glutinosus*.

All the sixes were well set this time. Then a collection of very large specimens of scarlet Geraniums from Mr. Somebody (his card not turned), of which *Beckenham Scarlet* was the best kind.

FINE-LEAVED PLANTS in tens for amateurs and in twelves for nurserymen, went thus:—First prize to Mr. Veitch, second to Mr. Jackson, and third to Mr. Cutbush, of Barnet. And first to Mr. Dods; two seconds to Mr. Young, Dulwich, and Mr. Colgate, Kensington; third to Mr. Summers; and extras to Mr. Hamp and Mr. Oubridge. There was nothing new in all these; but Mr. Veitch's plants, or some of them, were of enormous size, and the same with Mr. Jackson's.

AZALEAS were very few and very good. Mr. Green was first with eight plants, and Mr. Carson with six. Mr. Page was second to Mr. Green; and Messrs. Peed, Hamp, and Chilman had prizes for Azaleas. Mr. Ivery, of Dorking, did not come up this time in Azaleas.

HEATHS very good and numerous; and *Gloxinias* blocking up both ends of their run. Here was another tie between Mr. Jackson, of Kingston, and Mr. Cutbush, of Barnet, with eight plants each; followed by Messrs. Baxindine and Chilman. In Six Heaths the Messrs. Peed were first and second; he from Lower Norwood being the first. The following Heaths were the principal kinds:—*Ventricosas* of sorts, *perspicua nana*, *florida*, *depressa*, *Cavendishii*, *elegans*, *tricolor* of sorts, *gemifera*, *Paxtoni*, *mutabilis*, *ampulacea*, and *Westphalingia*.

TALL CACTI.—Mr. Green first, of course. His own namesake—*Cactus*, or *Epiphyllum Greenii*, was the best. Mr. Bunn, gardener to J. R. Scott, Esq., Hornsey, second; and an extra prize to Mr. Walters.

FERNS very good indeed; but not such large plants, or so numerous, as we had two or three years back. Mr. Veitch took the first prize for nurserymen with twelve very large plants; and Mr. Baillie, gardener to W. C. Carbonell, Esq., took the first prize in the amateur class. Mr. Summers was next, followed by Messrs. Wooley, Gedney, Halley, Larey, and Stacy. Then a host of odds and ends. Eighteen cut *Ranunculuses* from Mr. John Baily, Benson, Oxon. Twelve *Hippeasters* (*Amaryllis*) from Mr. Gaines. Large collections of miscellaneous Cactuses and other succulents from Mr. Summers and Mr. C. Pfersdorff, Kensal New Town. A first-rate collection of Ferns from Mr. Sims, Footscray, Kent, which had a first prize in miscellaneous. A very beautiful and well-bloomed plant of *Desfontainea spinosa*, from the Rev. J. Stainforth, Windermere. It was nearly four feet high, and very healthy and bushy; the flowers are very much like those of the turn-down-tubed *Amaryllis*—the *Cyrtanthus* kinds, brown crimson tubes with yellow ends, very handsome. A fine *Labeihæa heterophylla* from Mr. Carson. A collection of Begonias, and a white-flowered and woolly-white-leaved *Salvia*, from Mr. Williams, nurseryman, Muswell Hill. Another collection of Begonias from Mr. Young. A white-flowered standard *Rhododendron*, with deeply-spotted back petals from Mr. Standish: it is called *Minie*. Pots and baskets of Mr. Halley's variegated Geraniums. A miscellany of dwarf variegated plants from Mr. Wood, of Norwood.

A collection of twelve Begonias and other new plants from Mr. Veitch. *Rex*, *argentea* and its varieties, as *Miranda*, *Madame Wagner*, with *amabilis*, *Lazula*, *Griffithii*, and others of that style. *Clianthus Dampieri*; *Caladium argyrites*, the dwarfiest and best of them with

other Caladiums; *Rhododendron Veitchii*, a large white flower with crisped edges; *Embothrium coccineum*; *Bahmeria argentea*, a broad-leaved tree Nettlewort, which should be spelled Böhmeria, or Bæhmeria—the upper surface of these broad leaves is silvered like the argent Begonias; two kinds of dwarf variegated Dichorisandra, so called; and a host of other odds and ends. Then the noble Pitcher plants in collections, for which Mr. Veitch took the first prize, and Mr. Gedney the second. *Ampullacea* in Mr. Veitch's had a cluster of twenty-three pitchers close to the bottom of the plant, and resting all round on the surface of the pot—a most beautiful sight; these come on small radical leaves, or the first cluster of leaves before the plant sends out the running stem; there are no pitchers on the upper leaves of this kind. *Rafflesiana* and *lanata* have the largest pitchers; and those of *lavis* are quite small in comparison.

ORCHIDS.—These were splendid and very numerous, with little novelty. Mr. Gedney, from Hoddesden, took the first prize of £20, for twenty plants; and Mr. Bullen, gardener to J. Butler, Esq., Woolwich, the second prize of £15. Mr. Gedney had a noble plant of *Angulosa Clowesii*, an *Epidendrum macrochilum roseum*, *Lælia purpurata*, with four blooms; with *Aërides*, *Vandas*, *Phalenopses*, *Cypripeds*, *Lælia cinnabarina*, and others. Mr. Bullen had *Dendrobium secundum*, which is seldom seen—it had racemes of soft, velvety, reddish flower-buds; *Dendrobium Farmeri* and *Deconianum*, *Cattleya Mossiae*, *Angulosa Clowesii*, with six immense blooms; *Sobralia macrantha*, and all the rest of them.

In fifteen Orchids, Mr. Veitch was first; and Mr. Wooley third. Both collections were splendid and of the usual run.

With collections of twelve Orchids, Mr. Dods was first, Mr. Carson second, and Mr. Rhodes third. Mr. Dods had his most noble *Lælia purpurata*, with nine flowers again; a noble noble *Dendrobium*, *Oncidium ampliatum major*, very fine; *Cypripeds*, *Saccolabium*, *Aërides*, and others. Mr. Carson had *Angulosa Ruckeri*, the fairy *Dendrochilum filiforme*, *Dendrobium Farmeri*, named after his worthy master; *Cynoches chlorochilon*, the oddest of the Swan Necks, with five curiously turned flowers; *Epidendrum longipetalum*, and the rest of more common kinds.

In sixes, Mr. Page was first; and Mr. Green second. All these were just as good as those in the more ambitious collections. *Brassia verrucosa*, *Phalenopsis*, *Cattleya Mossiae*, in Mr. Page's, were very fine; and Mr. Green is the only man among us who can exhibit *lanceanum*, the best of all the *Oncidium*s; his *Cattleya intermedia*, and his *Dendrobium nobile*, were just as good. There was not a badly grown plant among all the Orchids.

Turning to novelties, in another end of the Exhibition we find Mr. Veitch up again first with new fancy Begonias, in first-rate style of growth, most of them are apparently seedlings from *Rex*; several plants of *Queen of England*, *Arab*, *Minie*, *Waterwitch*, and *Princess Alice* are certainly of the strain and blood of *Rex*; but *Virginalis*, and *Prince of Wales*, had a different pollen. And, secondly, a tub plant of *Torreya myristica*, a free growth and Yew-like aspect; and also a tub plant of *Thuja Lobbi*, a stout and close-growing kind. From the Messrs. Fraser, a very fine seedling Cactus, *Epiphyllum*, after the flowers of *speciosissimum*. From Mr. Sims, Foot's Cray, the Fern *Gleichenia rupestris*, under a glass balloon, a very pretty thing indeed; and *Saliginella rubricaulis*. Then Mr. Veitch again, with *Gymnogramma chrysophylla cristata*, a species of *Aërides*—a beautiful little tree-like plant, with Fern leaves, and called *Chamaebotia foliolosa*. *Cattleya* sp., in the way of *Lælia purpurata*; a pot of the pretty little annual called *Fenzlia dianthiflora*, a very dwarf Gilia-looking thing. *Ceanothus* spec., in a way between *Azureus* and *Pallidus*; *Rhododendron Brookii*, leaves like an *Ixora*, and flowers like young *Allamandas*; and *Hexacentris coccinea Impeyi*, which, by the way, has no affinity with *Hexacentris coccinea*, but

call it *Hexacentris Impeyi*, and it is a noble plant, with long drooping shoots, clustered with dark brown flowers with a little yellow; the colour is something after *Hoya imperialis*. Mr. Gedney, of Hoddesden, had a most beautiful double *Hemerocallis* from Natal, with two kinds of yellow in the petals; and a light blue slender plant, the flowers of which are after those of *Lisianthus*, the name is *Tachadenus carinatus*, the genus is near to *Lisianthus* and *Propusa*, but the looks of the leaves are after some *Osbeckia*. Mr. Jackson had *Genetyllis macrostigia*, the little silvery *Caladium argyrites*, and several larger kinds. *Azalea Fire King*, *Cyanophyllum magnificum*; and Mr. Williams, of Finchley, had these new spotted Caladiums, with *Goodyeras*, and others. But I had to turn up the cards for all these novelties to get at the names of the exhibitors, at the risk of being locked up by the police. The parties should push for me to get at the prizes, for I shall never stoop to copy prizes from a schedule, like a newspaper reporter who may know not one plant from another. There were cut branches of a remarkable new *Viburnum*, from the north of China, with flower-heads after the manner of *Hydrangea Japonica*, from Mr. Standish, of Bagshot, and with a powerful scent of Hawthorn blossoms.

FUCHSIAS next, good and not numerous, but capitally placed. Mr. Oubridge, was first with two whites and four reds: *Clio* and *Venus de Medici*, whites; and *Tristram Shandy*, *Little Bo Peep*, *Glory*, and *Souvenir de Chiswick*. The last was the showiest red Fuchsia there. Second, Mr. Elliot, gardener to — Davidson, Esq., Sydenham, with three whites, and three reds; and Mr. Cavell, gardener to — Grove, Esq., Tulse Hill, third, with better grown plants, but not up so much to the mark in blooming.

CALCEOLARIAS very good. First prize to Mr. Cross, gardener to Lord Ashburton: being purely herbaceous, the names are useless. Second, Mr. Burley, Limsfield, Surrey, all half shrubby. *General Havelock*, a fine dark crimson; *Lord Raglan* reddish brown; and *Primrose Perfection*, the best yellow. The third went to Mr. Coles, St. Albans. His *Grandis* is a great improvement on the *Kentish Hero*. One of the best crimson Calceolarias I have seen was in a lot from Mr. Cannill, the name is *Amassandor*; and one plant of *Aurea floribunda* in Mr. James' group was four feet across. But was it one plant?

ROSES.—Not so good or so numerous as in May. Mr. Lane was first again in the nurserymen's class with twelve splendid beauties, *Juno*, *Elise Mercœur*, *Comtesse Mole*, *Général Jacqueminot*, *Queen* or *La Reine*, *Blairii* No. 2, *Auguste Mie*, *Paul Perras*, and so forth. Mr. Rolland took the first prize; and Mr. Terry the second prize with similar kinds; and Mr. Paul took the first in an immense quantity of cut Roses. Lots more of cut Roses were there; also, cut Pinks, Pansies, and Verbenas, but cut blooms are most dangerous traps to fall for or foul upon, so I keep clear of them as much as I am able.

PELARGONIUMS.—The best dish at the feast. To think for one moment that any mortal could explain the fancies in eight-inch pots, and the plants four feet odd in diameter, is as much as to think that miracles are still allowed to mortals. *Madame Sontag*, four feet in one diameter, and four feet six inches in the opposite diameter, and no crinoline or any mistake about her, for I measured Madame myself. *Evening Star*, not quite so full. *Delicatum*, ditto. *Celestial*, the same. *Cassandra* and *Madame Bougrière*, each over three feet across. They had the first prize, and I had no need to turn up the trump card. Mr. Turner is the only man that can do it. Mr. Windsor, Hampstead, was second; and the Messrs. Fraser third.

In the amateur class for Fancy Pelargoniums, Mr. Bailey, gardener to J. J. Drake, Esq., Amersham, was first, but the tallies were so horridly written, that it would take an hour to decipher them. The second prize to Mr. James, gardener, Isleworth. Large Pelargoniums: Messrs. Turner, Dobson, and Fraser, stood so. And in the Amateur Class, Messrs. Nye, Bailey, Wiggins, and

Windsor stood so too. Mr. Nye, gardener to E. Foster, Esq., had one kind under three names—*Syren*, *Meteor*, and *Flora*, three seedlings out of one pod, or might be. It was running out names so close by the florists for seedlings, which were hardly visibly distinct to the rest of the world, which brought disgrace and dismay on the Pelargonium, which, were it not for the Fancies and Spotted from the French, would be cultivated by nobody at this day but by genuine florists. But *Carlos*, *Viola*, and *Eugène Duval*, were so distinct as to drown the error in placing *Syren*, *Meteor*, and *Flora* in one collection. Mr. Wiggins, who is gardener to E. Beck, Esq., the great florist, had his plants remarkably well set. They were very distinct—as *Eclipse*, *Viola*, *Fairest of the Fair*, *Rose Leaf*, and *Governor-General*; the two last to match.

SEEDLING PELARGONIUMS.—*Sarah Turner* in the Fancy class, and *Lord Clyde* in the Large class, were the two best there, and both had first prizes. In the French Spotted, a seedling named *Bracelet* was the best; it is from Mr. Turner, and is after his *Riflesman*, which I mentioned last May. *Bracelet* had a prize, and so had a great many more seedlings, for “points” which I do not understand, nor have the smallest wish to learn. *Sarah Turner* is a love of a thing—the highest or deepest of all the Fancies, and as round as a cricket-ball, with a small light-shaded eye. *Lord Clyde*, one of Mr. Foster’s seedlings, is the finest flower of the race; the three front petals are clean, clear, light orange scarlet. The large dark blotch in the upper petals shades off to a deep crimson broad edge. Size and substance wonderful, and *Bracelet* is nearly as big. Another seedling by Mr. Foster, for which he probably expected no prize or notice, will be a great favourite with the ladies, and will vie with *Viola* and *Eugène Duval* in distinctness; it is named *Bijou*. It is not a florists’ flower. The front petals are of clouded purple and lilac—a deep, dark upper petal, as edged with a very thin edge of light lilac—a very peculiar flower, and a seedling from *Viola*, ten to one. Mr. Kinghorn had six plants of his rosy-cheek *Christina* there, and several large plants of his *Sheen Rival*—the very best scarlet Geranium he ever helped to bring into this world. Mr. Hally had a kind like *Countess of Beattie*, with a white eye. It is more of a house plant. Mr. Cutbush, of Highgate, had a lot of his best variegated Geranium, called *Beauty*; it is a clear orange scarlet flower. Mr. Veitch had three plants of a darling little crimson, with equal-sized black spots on all the petals, for which he had a first prize. It is from the French Spotted breed, like *Riflesman* and *Bracelet*. The name is *Mrs. Ponsonby Moore*, and if it would bed out, the ladies would sell their erinoline sooner than go without it.

D. BEATON.

FRUIT.

There were some very good dishes and specimens of fruit; but the collection altogether came far short of what we have seen at the Crystal Palace a few years ago at the same season.

In the MISCELLANEOUS COLLECTIONS the best was exhibited by Messrs. Webber and Co., of Covent Garden; but not being their own growth it was disqualified, and the prize was taken by Mr. Dawson, gardener to Earl Cowper, Penshanger, for *Prickly* and *Smooth-leaved Cayenne* Pines; *May Duke* and *Elton* Cherries; a Melon; a dish of *Grosse Mignonne* Peach; a dish of *Admiral Dundas* Strawberry; and a dish of *Chasselas Musqué* Grapes; the last of which were not good.

The PINES were magnificent. In *Providence* the first prize was awarded to Mr. Bailey, gardener to T. Drake, Esq., Shardloes, and second to Mr. Floud, gardener to R. Fothergill, Esq., Aberdare. This specimen weighed 11 lbs. 3 ozs. The *Queens* were also very good, the best being those of Mr. Young, of Dulwich, and second to Mr. Bailey. The first prize for Pines of any kind was awarded to Mr. Scott, of Leigh Park, for a fine specimen of *Black Prince*.

In BLACK GRAPES the competition was a very close one. Mr. Hill, of Keele Hall, came in first with three magnificent bunches of *Black Hamburgh*. Black as jet, and “hammered” all over. Two second prizes were awarded to Mr. Tilyard, of Heckfield, and Mr. Frost, of Preston Hall, respectively. In both instances the berries were large, finely-coloured, and “hammered;” but Mr. Tilyard’s were the handsomest bunches. In this class Mr. Carpenter, of Barr Hall, Staffordshire, exhibited the large, round, and flat-berried *Dutch Hamburgh* for *Champion Hamburgh*, which is quite a distinct and very superior variety. The berries were large, but must have been badly packed, for they had lost all their bloom.

In WHITE GRAPES, Mr. George Smith, gardener to H. Littledale, Esq., Lisecard, Cheshire, took first prize with very excellent *Royal Muscadines*. In this class were three small bunches, very badly grown, of *Golden Hamburgh*, the stalks of which were decayed, and gave a very bad idea of what this excellent Grape is when in perfection.

The MUSCATS were very poor indeed, and neither of them were worthy of a prize.

In the class for 12 lbs. of Grapes, the best were those of Mr. H. Baker, Thurmaston, Leicester, and they were very good.

The *Royal George* PEACHES from Mr. Sage, gardener to Earl Brownlow, Ashridge, were very fine; as were also the *Elrue* NECTARINES of Mr. Frost, and the *Violette Hâtive* of Mr. Hill, both of whom got first prizes. In each of these cases the exhibitions were very much admired.

Mr. Snow, of Wrest Park, took first prize for FIGS. They were very fine.

In WHITE and BLACK CHERRIES, Mr. Henderson, gardener to the Duke of Sutherland, at Trentham, had it all his own way. His *Black Tartarian*, *Elton*, and *May Dukes*, could not have been surpassed, and with difficulty equalled.

In the collection of STRAWBERRIES, Mr. Smith, of Richmond Road, Twickenham, sustained his reputation with dishes of magnificent fruit of *Sir Charles Napier*, *British Queen*, and *Keens’ Seedling*. The *British Queens* were beautifully coloured.

The VINES in pots were well done. The first prize was taken by Mr. Alderson, of South Lambeth, and the second by Mr. Summers, gardener to A. Mongredien, Esq., of Forest Hill.—H.

VENTILATION—AIR-MOISTURE IN GLAZED STRUCTURES.

THE question of ventilation, or air-giving, like most other principles in gardening, has been pretty well riddled and tossed about during the last thirty years; and it is getting high time, after so lengthened an agitation, that the corn was extracted from the chaff and turned to account.

In former days the glass was so green and thick, that there was little anxiety on this head. If a little burning took place, it was only through a clumsy bull’s-eye protuberance here and there; but in later years, by the introduction of new characters of glass, we have heard of hundreds of cases of burning by wholesale.

Unluckily for such matters in a transition state, it happened that the question of ventilation was over-ventilated about the period of the advent of our new kinds of glass, and theory itself rather overworked a few salient points. I allude to the opinion once promulgated, that over-ventilation was a most pernicious thing, and that gardeners in general would do better if their tether were more limited in this respect. In fact, not to give them a chance of riding their hobby too hard.

From such considerations springs forth the idea that the lights of houses ought to be fast; and that it was amply sufficient to knock a few small holes in the back and front walls, wherein were placed little playthings

called ventilators. But it was soon discovered that these minute winter toys could not stand the brunt of a hot summer's day, and that there must be "something rotten in the state" of gardening, to produce such disastrous results. Let us, for a moment, examine the case of ventilation, and endeavour to see how far it is necessitated, as concerns the inmates of glazed structures, whether fruits or flowers;—with the circumstances connected with Wardian Cases we have nothing to do; Ferns, aquatic or submarine plants, &c., are exceptions.

Everybody knows that the gardener is compelled to resort to copious ventilation in hot periods in order to prevent actual scorching of the foliage of plants or trees; but scarcely so well acquainted with, or convinced of, the fact, that all enclosed air or heat becomes corrupted, and, indeed, loses essential properties. Even motion in the air,—a motion that may be slightly felt,—is proved to be of eminent service as a promoter of health and that robustness which is the general mark of successful culture both in plants and fruits. How frequently do we find in badly-ventilated structures Moss and cryptogamous forms, Fungi, &c., engendered; and I am assured that there is not a real gardener in Britain that would desire to see an aptitude to produce such obscure invaders in any house where plants, and, more especially, fruits, were cultivated. Such things are at once an index to a stagnation of atmosphere, to the constant presence of damp, or to the want of motion in the air.

It is now many years since I urged in these and other pages the propriety of giving air, as it is called, not only day, but night; modified, of course, in its extent by circumstances. Many discussions have occurred since then about the benefits to be derived from ventilation; and although not a political affair, I must borrow a phrase, and affirm that the liberals have been constantly gaining ground. I should think there is scarcely a good gardener that would repudiate the principle of constant night air, provided he could feel a sufficient guarantee against extreme vicissitudes, and was not afraid of losing too much air-moisture. The latter is, indeed, the chief point to be considered, as to night ventilation. But the means employed in our times for producing air-moisture in an almost constant supply are so numerous and so efficient, that there is much less room for anxiety or jealousy on that score than in former days. With regard to burning foliage and imperfect ventilation, we must remember that, until during the last thirty or forty years, thick green glass was in vogue, and this required little shading; therefore, little danger of scorching or burning.

When I first arrived at Oulton Park, now nearly thirty-two years since, there was a range of houses about one hundred feet in length, by sixteen to eighteen feet in width, that were a capital memorial of the olden time. The roofs were almost horizontal; and the glass would have made tolerably good tiles for roofing, such as might, some fine day hence, be patented as transparent roof tiles. The panes were about twelve inches by nine inches, and they overlapped each other about two broad inches. The glass was a dull, dirty-looking green, and oh! such a thickness. The laps were filled with sediment, in which sundry Cryptogams seemed to revel as in their native element. Shading and burning here were out of the question. The Vines were exceedingly long-jointed, and the "shows," or young bunches, had a constant tendency to run into wires. The roots, when the border was broken up, were like half-charred sticks, and the border was one adhesive mass, for five feet, or more, in depth.

Let us see what benefits a liberal ventilation affords. Of course such is antagonistic to the production of Mosses, Fungi, &c., which, in a state of nature, are generally produced in spots where stagnant or vitiated air hovers around, and the atmosphere sluggish and dull. It is almost sufficient to afford arguments for liberal and frequent ventilation to look into a close propagating-house,

and observe the delicate and attenuated appearance of drawn or excited cuttings, or young growing stock. To be sure the practice there is well adapted to the desired end, which is not only to propagate, but to produce saleable or eligible stock in the shortest time possible. But to get such stock into working order—say young Vines into a fruitful state—the conditions have to be reversed. Sturdiness and short-jointed wood are the general criterion of a healthy and fruitful state; and this cannot be obtained without most liberal ventilation. The free deposition of that fat or resinous substance, called by botanists chlorophyll—the colouring matter of the foliage of plants, is much augmented by free ventilation. An abundance of colouring matter is a well-known mark of robustness and health.

People sometimes complain of cold currents, and of plants suffering thereby; but if a constant circulation or motion of the air is sustained in houses where plants, &c., are cultivated, folks would not be so jealous as they are about a puff of wind. The great fault of most forcing, or hurrying, processes is, that they, after all, are but a leaning to a coddling system. Atmospheres of this kind are kept by far too uniform: there is still not sufficient difference between day and night—not such as we find in nature. Those alternate fluctuations, or depressions, which we consider as Nature's excesses, are rather more to be considered as intended to be conducive to the end in view.

We must begin at the beginning, if this free course of treatment is to be pursued. We must, in all forcing courses, from the first unfolding of the bud, inure our subjects to a liberal air, establishing betimes a degree of hardihood instead of an artificially-induced tenderness. It is a common practice of forcing gardeners to keep their subjects close at the commencement of the forcing process; and the recommendation on the whole is not altogether without reason. I would, however, advise young gardeners to consider well what this means, and to analyse it in their own minds. No man can make a Vine or a Peach shoot or bloom stronger by hermetically closing, as it were, a house, and sustaining an unusual amount of air-moisture, unless he have some adjuncts more potent still. And what are those adjuncts? A well-conditioned root, and latent energies, which can be made available at a short notice. There are two distinct powers here which ought to be distinguished: the one, immediate root action, coincident with the developing spray; the other, those latent stores which may be called stock in hand, and which frequently, especially in the Vine, carry out the first stages before the root action can rush to its assistance. Thus it is that we have found cut-down Willow and other trees, in damp situations, vegetate annually for several years before the vital spark is extinct. Such matters should be well looked into by our young and rising generation of gardeners, who are destined to "push us off our stools." Well mastered, these apparently trivial things will furnish them with a key which will open out Nature's secrets, and cause the film to pass from their eyes.

It must not be supposed that I advise people to give air recklessly. Such inference I repudiate: but I do think that the matter of ventilation has scarcely received that grave consideration which it deserves.

R. ERRINGTON.

THE SCIENCE OF GARDENING.

(Continued from page 139.)

"The rapidity with which the water contained in various soils evaporates, by exposure to the atmosphere, varies very considerably. The following table contains the results of the experiments made by M. Schubler, in reference to this point, with 200 grains of the several earths at a temperature of 65°: they were spread out over a surface of ten square inches. The second column of the table contains in one view the portions of time in which the several earths respectively became dry under exposure to the

same temperature: he did not require a perfect state of dryness, as this, at a temperature of 65½ F. and in the open air, could not be expected.

Kinds of earth.	Capability of drying.	
	Evaporation from 100 parts of absorbed water, at 65½° F. in 4 hours.	Times required for 90 parts of water to evaporate (at 65½° F.) from 100 parts absorbed.
	Parts.	Hours. Minutes.
Siliceous sand	88.1	4 4
Calcareous sand	75.9	4 44
Gypsum powder	71.7	5 1
Sandy clay	52.0	6 55
Loamy clay	45.7	7 52
Stiff clay, or brick earth	34.9	10 19
Pure grey clay	31.9	11 17
Fine lime	28.0	12 51
Humus	20.5	17 33
Magnesia	10.8	33 20
Garden mould	24.3	14 49
Arable soil	32.0	11 15
Slaty marl	68.0	5 53

“The degree of contraction which soils undergo by being dried also varies very considerably. The subjoined table gives the extent of this in the cases of the common earths:—

Kinds of earth.	1000 cubic lines became diminished in volume to	1000 parts there- became diminished in volume by
	(no change)	—
Siliceous sand	950 cubic lines	50 parts.
Calcareous sand		60 ”
Fine lime	940 ”	89 ”
Sandy clay	911 ”	114 ”
Loamy clay	886 ”	183 ”
Stiff clay, or brick earth	817 ”	154 ”
Pure grey clay	846 ”	200 ”
Carbonate of magnesia	800 ”	149 ”
Humus	851 ”	120 ”
Garden mould	880 ”	35 ”
Arable soil	963 ”	”
Slaty marl	”	”

“The extent to which various soils absorb the insensible vapour of the atmosphere was first endeavoured to be ascertained by Sir H. Davy (*Agric. Chem.*, p. 183). It is a power, as he truly enough described it, much connected with fertility. M. Schubler has much extended the experiments of Davy. (*Jour. R. A. S.*, vol. i. p. 196). The following table gives the results of these valuable researches, which were made by exposing the various earths in an atmosphere contained in an inverted vessel, resting in a surface of water, in a temperature of 59° to 65½°. Under these circumstances the confined air, having free access to water, may be regarded as having been saturated with moisture.

Kinds of earth.	1000 grains of earth on a surface of 50 square inches, absorbed in—			
	12 hours.	24 hours.	48 hours.	72 hours.
	Grains.	Grains.	Grains.	Grains.
Siliceous sand	0	0	0	0
Calcareous sand	2	3	3	3
Gypsum powder	1	1	1	1
Sandy clay	21	26	28	28
Loamy clay	25	30	34	35
Stiff clay	30	36	40	41
Pure grey clay	37	42	48	49
Fine lime	26	31	35	35
Fine magnesia	69	76	80	82
Humus	80	97	110	120
Garden mould	35	45	50	52
Arable soil	16	22	23	23
Slaty marl	24	29	32	33

“It is a common error to regard the subsoil as being always similar in its earthy composition to the surface soil; and thus not to look for assistance to that source. This erroneous conclusion long misled, for instance, the cultivators of some of the thin clays of the north of Hampshire, resting upon the chalk formation; the chalk being there so very near the surface soil, no one imagined that a dressing with that could possibly fertilise the thin clay soil which merely covered it to the depth of a few inches; they have found, however, upon a correct examination, such a deficiency of carbonate of lime (chalk) in this thin surface of clay that they have now generally adopted, with great advantage, the plan of manuring these soils with copious dressings

of chalk, brought to the surface, in some instances, by sinking dry wells to a considerable depth. And in another adjoining portion of the same county, the deep clays of the district around Strathfieldsaye, it has been found, by the analysis of Professor Phillips, that this apparently uniform clay differs very materially in composition at different depths. He found (to give an instance) in one hundred parts of two varieties of clay, at twenty-two inches and at four feet six inches, per cent.

	At 22 ins.	At 54 ins.
Silica	59.0	72.9
Alumina	23.5	13.4
Peroxide of iron	8.1	6.6
Carbonate of lime	1.0	0.8
Water, sulphate of lime, &c.	4.8	5.5
Carbonate of magnesia	0.0	9.8

—(*Jour. R. A. S.* vol. vii. p. 258.)

“The cultivators of the northern portion of our island, who principally obtain their lime from limestone, are, generally speaking, hardly sufficiently particular as to the quality of the stone they employ—this varies very considerably. Thus, some of the limestones of Argyleshire, have been found by Professor Johnston to contain—

Carbonate of lime	90.14
Carbonate of magnesia	0.31
Alumina, and oxide of iron	0.51
Insoluble siliceous matter	9.08

“The lime obtained from such limestone would not contain so large a portion of magnesia as to be injurious to vegetables; other limestones, however, are of a very different description; specimens from Berwickshire contained—

	From Langton Park.	Langton Wood.	Grueledykes.
Carbonate of lime	43.85	47.00	43.81
Carbonate of magnesia	33.31	38.04	39.50
Alumina and oxide of iron	1.59	1.99	3.57
Insoluble siliceous matter	21.41	12.97	13.09

—(*Trans. High. Soc.*, 1847, p. 574—577.)”

Before leaving this branch of our subject—the constitution of soils, we must detail that of the soil so valuable to the gardener, *peat earth* or *bog mould*. This is not that mass of moss or sphagnum dug out of wet, fenny places for fuel; but a sharp, sandy soil, mixed with the dead, fibrous roots of heath, and usually of a dark-grey colour, such as is found upon the surface beneath the heath on Wimbledon, Bagshot, and many other dry commons. Peat of the best description is thus constituted. Of 400 parts—

Fine siliceous sand	156
Unaltered vegetable fibre	2
Decomposing vegetable matter	110
Silica (flint)	102
Alumina (clay)	16
Oxide of iron	4
Soluble, vegetable, and saline matter	4
Muriate of lime	4
Loss	2

(To be continued.)

WHAT MAY BE DONE WITH AN ORCHARD HOUSE.

DR. BECK thanks THE COTTAGE GARDENER for calling the attention of the horticultural world to the orchard-house, the value of which this unfavourable spring will establish.

The fruit trees in Dr. Beck’s orchard-houses are covered with well-grown fruit, with abundance of shoots to bear another year, and the foliage in perfect health. Not an insect or blight of any kind. What a contrast to unprotected fruit trees this year!

It was a very pretty sight to see twenty-two Peach and Nectarine trees in pots, in full bloom and health at the same time. The fruit on them is now the size of Walnuts. The pots are sunk, which they should be, or twice the quantity of water is required. On the back wall of the orchard-house are five established Peach and Nectarine trees, in full bearing, one of which bore 240 Peaches last year,—too many by half. Dr. Beck allows only from eighteen to twenty-four Peaches and Nectarines

to each pot. Last year he foolishly allowed five dozen Peaches on one tree. This year, the tree is permitted only two dozen, which promise to be very fine.

About 250 pots of Strawberries were placed in the house about two months since, which produced from 1½ lbs. to 2 lbs. of fruit every day, much of which is large, and all fine-flavoured. They are watered every day in the evening when the day has been warm and sunny. If cloudy, every second day.

Every rafter has a young Vine growing up it. Some are already bearing fruit. Yet the first orchard house, thirty feet long, was only finished two years since; and the last house, of forty-five feet, was only completed at the end of last November. There are twenty-four Vines—*Black Hamburgh*, *Black Frontignan*, *White ditto*, *Gristey ditto*, *Muscat of Esculata*, *Dutch Sweetwater*, and *Golden Hamburgh*. Old gardeners will say it is impossible Vines, Peaches, Nectarines, and Strawberries will do in one house. Dr. Beek's look very happy and well; and, like "the happy family," appear to agree perfectly.

The Vines will throw a grateful and useful shade on the fruit trees and moderate the heat, which, on the south portion of the house, is very great. Of course, there is no heating, no pipes or flues,—orchard-houses should not have them,—they are for the million.

Dr. Beek's Melons are as promising as usual; the beds are never lined, but the sun's rays are husbanded. Dr. Beek obtained the first prize for Strawberries at Ipswich on Thursday week, against several who used hot water and flues; and an extra prize for table Pears, the *Easter Beurré*, some of which he has still.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 138)

NUTS AND FILBERTS.

SYNOPSIS OF NUTS.

I. NUTS.—*The husk shorter than, or as long as, the Nut.*

Bond	Downton Square
Cob	Pearson's Prolific
Cosford	

II. FILBERTS.—*Husk longer than the Nut.*

Frizzled	Red
Lambert	White
Purple	

BOND NUT.—Husk hairy, shorter than the nut. Nut of medium size, ovate and oblong. Shell thin. Kernel large.

This is an excellent nut, and the tree is a good bearer. **Cape Nut.** See *Frizzled Filbert*.

COB (Round Cob).—Husk hairy, shorter than the nut, and much frizzled. Nut large, obtusely ovate. Shell of a light brown colour, rather thick. Kernel large.

A good nut for early use, but does not keep well.

COSFORD (Miss Young's; Thin-shelled).—Husk hairy, as long as the nut, and deeply cut. Nut large, oblong. Shell of a light brown colour, very thin, so much so as to be easily broken between the finger and thumb. Kernel large, and well flavoured.

An excellent early nut, and the tree is an abundant bearer.

DOWNTON SQUARE.—Husk smooth, shorter than the nut. Nut large, short, four-sided. Shell thick. Kernel full, and well flavoured.

Dwarf Prolific. See *Pearson's Prolific*.

Filbert Cob. See *Lambert Filbert*.

FRIZZLED FILBERT (Frizzled Nut; Cape Nut).—Husk hairy, twice as long as the nut, deeply frizzled, and spreading open at the mouth. Nut small, oblong, and flattened. Shell thick. Kernel full.

This is rather a late variety. The tree is an excellent bearer, and the nuts are produced in clusters.

Kentish Cob. See *Lambert Filbert*.

LAMBERT FILBERT (Kentish Cob; Filbert Cob).—Husk nearly smooth, longer than the nut, and very slightly cut round the margin. Nut large, oblong, and somewhat compressed. Shell pretty thick, of a brown colour. Kernel full, and very richly flavoured.

This is, perhaps, the best of all the nuts. The tree is a most abundant bearer; some of the nuts are upwards of an inch in length, and they have, with care, been kept for four years. It is only after being kept for some time that their full richness of flavour is obtained.

Miss Young's. See *Cosford*.

Nottingham Prolific. See *Pearson's Prolific*.

PEARSON'S PROLIFIC (Dwarf Prolific; Nottingham Prolific).—Husk hairy, shorter than the nut. Nut medium sized, and smaller than the Cob; obtusely ovate. Shell rather thick. Kernel full.

A very excellent variety. The trees are most abundant bearers, and I have seen them not more than two feet and a half high laden with fruit.

PURPLE FILBERT (Purple-leaved).—This differs from the Red Filbert in having the leaves of a dark blood-red colour, like those of the Purple Beech. The fruit is similar to, and quite as good as, that of the Red Filbert, and is of a deep purple colour. It is, therefore, not only valuable as an ornamental shrub, but produces excellent fruit.

RED FILBERT (Red Hazel).—Husk hairy, longer than the nut. Nut of medium size, ovate. Shell thick. Kernel full, covered with a red skin.

Round Cob. See *Cob*.

Thin-shelled. See *Cosford*.

WHITE FILBERT (Wrotham Park).—Husk hairy, longer than the nut, round the apex of which it is contracted. Nut medium sized, ovate. Shell thick. Kernel full, and covered with a white skin.

Wrotham Park. See *White Filbert*.

PEACHES.

SYNOPSIS OF PEACHES.

I. FREESTONES.

Flesh separating freely from the stone.

* *Leaves without glands.*

A. Flowers large.	
Early Anne	Red Magdalene
Early Savoy	Sulhamstead
Early York	Vanguard
Hemskerk	White Magdalene
Malta	White Nutmeg
Montaubon	
Noblesse	B. Flowers small.
Prince Eugène	Early Tillotson
Princesse Marie	Royal Charlotte
Pucelle de Malines	Royal George

** *Leaves with round glands.*

A. Flowers large.	
Abec	Bellegarde
Acton Scot	Boudin
Barrington	Cooledge's Favourite
Belle Beauca	Crawford's Early
Early Admirable	Desse Tardive
Early Grosse Mignonne	George the Fourth
Grosse Mignonne	Gregory's Late
Hâtive de Ferrières	Incomparable en Beauté
Leopold the First	Late Admirable
Mountaincer	Morrisania
Springrove	Nivette
	Téton de Venus
	Violette Hâtive
	Walburton Admirable
	Yellow Alberge
B. Flowers small.	
American Newington	
Belle de Doué	

**** Leaves with kidney-shaped glands.*

A. Flowers large.	B. Flowers small.
Early Purple	Bello Chevreuse
Flat Peach of China	Belle de la Croix
Red Nutmeg	Chancellor
Shanghai	Reine des Verges
Yellow Admirable	Rosanna
	Salivay
	Small Mignonne

II. CLINGSTONES.

† *Leaves without glands.*

A. Flowers large.

Early Newington

O'd Newington

†† *Leaves with kidney-shaped glands.*

A. Flowers large.

Pavie de Pomponne

B. Flowers small.

Catherine

Incomparable

ABEC.—Fruit of medium size and roundish, pitted at the apex, one side of which is higher than the other, and with a shallow suture, which is also higher on one side. Skin remarkably thin and tender, of a lemon-yellow colour, with crimson dots on the shaded side, but covered with a crimson cheek and darker dots of the same colour on the side exposed to the sun. Flesh white, with a very slight tinge of red next the stone, from which it separates very freely; remarkably tender and melting, sweet, and with somewhat of a strawberry flavour. Glands round. Flowers large.

This is a very fine and early peach. It ripens in the third week of August.

Abricoté. See *Yellow Admirable*.

(To be continued.)

QUERIES AND ANSWERS.

HEATING A GREENHOUSE FROM A KITCHEN FIRE PLACE—WOOD *versus* IRON FOR FRAMES.

"I am about to erect a span-roofed greenhouse nearly forty feet in length; and, as one end thereof will be within a short distance of the kitchen fireplace, I think of obtaining an adequate supply of heat from that source. We shall have no difficulty in placing the pipes (four-inch) sufficiently high to ensure perfect circulation; but how the supply of artificial heat is to be cut off when not required is at present not so apparent. My mechanic tells me the boiler would burst if the flow of water through the pipes were intercepted: and his notion is, that the occasional interposition of a thick plate of iron, to fit in a groove, between the boiler (which will form the back of the fireplace) and the fire itself, will suffice to prevent the water being more than slightly heated. I doubt the fact, however; and, at any rate, am of opinion that the application and removal of this plate would be attended with trouble and inconvenience.

"The roof will be glazed with stout glass adapted for the purpose. It was my intention to use iron rafters, ten inches apart; but in Vol. XII. you give so decided a preference to wood over iron as to shake my determination in this particular. I do not attach much importance to the objection on the score of frequent painting; and am told there will be no risk of breakage from the sudden contraction of the metallic bars in frosty weather if we make use of the strong glass I have named, and interpose strips of India rubber in the glazing. What think you?"—G. CHAPMAN.

[We thoroughly agree with what you have stated as to the usefulness of slips of India rubber in such cases of glazing, if deemed necessary; and also that a plate of metal, enclosing a space of air between the metal and the boiler, would tend very much to keep the boiler from getting very hot when heat was not wanted in the greenhouse. But supposing that you had a cook or kitchen-maid that took such an interest in the gardener, or in the greenhouse, or studied her own comfort as to heat so much as to block off so far the fire from the boiler in the hot summer months, what are you to say to the housemaid, the scullery-maid, and now and then the groom, when they respec-

tively want a good supply of hot scalding water, and have no other resource to go to but the kitchen boiler? If the want of plenty of hot water in the summer become an excuse for the want of scrubbing, and scouring, and fomentations, and washes for a favourite horse, you may begin to think it was not all gain when you heated your greenhouse from a kitchen boiler, and resorted to such a mode for shutting off the heat from the greenhouse. Besides, supposing all these difficulties got over, you must manage the fire yourself as to the blocking, or have a major domo with the right to wield the kitchen poker, and also have the *entrée* of the greenhouse; or you must be superior to a growing custom among ladies and gentlemen of looking out for fresh servants, when they discover, that even upon such interesting matters, the young gardener and the blooming artiste of the kitchen have frequent friendly consultations: otherwise, or for particular reasons, it is desirable to keep the manager of the greenhouse and the manager of the kitchen from getting together, either about hot water or cold water. Then, as we shall see, however useful the iron block may be, and for varied uses, it would be desirable to shut off the heat as respects the greenhouse, when deemed necessary, without either going to the kitchen, or endangering a blow-up from the flight or bursting of the boiler.

The want of particularity as to the supplying the boiler with water may make this gossip more generally interesting by leading us to notice the two modes by which such boilers are generally managed; as, if not generally useful, answers must be shorter than they otherwise need be. A great many amateurs would like to heat from a kitchen boiler, and are deterred by what they are told are great difficulties; while, if managed by themselves, there can be little difficulty, if the circumstances are suitable.

The most common of these useful boilers are furnished with a tap for drawing off the water, and a moveable lid for replenishing with water, either as it is drawn off, or thrown off by evaporation, as from the lid of a tea-kettle. If it is attempted to heat a greenhouse from such a boiler, it can only be done when the pipes go at once and all through the house nearly on a level, and there is no part of the water in the pipes higher than within two or three inches of the top of the boiler. If any part of the pipes is lower than where the return-pipe enters the boiler, the circulation will be apt to be languid and defective. Under the above circumstances, whenever the water is heated, circulation in the pipes will commence. When not wanted, the flow should be shut off by a valve or tap. The cheapest way would be to have a short iron pipe—say, one inch and a half in diameter, connecting the boiler with the round pipes in the house, and the tap placed outside or inside the kitchen, according as an in-door, or out-door, servant had the management of the greenhouse heating. When the tap or taps are turned off, for the flow-pipe is the chief thing, there would be no heating of the house; and instead of any bursting of the boiler, there would, if there were no blocking off from a strong fire, be a considerable amount of steam constantly escaping by the lid opening up the chimney. If the boiler is small, this will be attended with no evil. If large, and the fires hot, it will sometimes be an annoyance, to which we will presently allude.

Accidents sometimes occur with such boilers from the simple fact of forgetting to fill them as they are more or less emptied. To guard against this, when circumstances will permit it is preferable to have a close-headed boiler—that is, one without a moveable lid, but fed from a cistern by means of a pipe, that cistern raised some feet above the top of the boiler, and kept constantly supplied with water by means of a floating ball-cock, which lets in water into the boiler just as fast as by any means it is drawn, or thrown by vapour out of it. The advantage of this mode, so far as heating other places is concerned, is, that your heating-pipes can be placed at any height, provided they are as high as the boiler at the lowest, and not higher than the water in the supply-cistern at the highest. An air-pipe at the highest point of the pipes in the greenhouse would dispense with the necessity of having any other opening. The boiler and pipes would all be supplied from the ball-cock cistern. Taps or plugs should be used for shutting off the hot water when necessary. A simpler mode might be this. Bring the flow and return into a stand, or a cistern inside the house. It matters little about the size of these connecting pipes. We should be satisfied with one inch or one inch and a half bore, and use three or four-inch ones in the house. Well, all you want when you desire no heat, is to insert a wooden plug in the end of these pipes and keep it there.

All right as to shutting off heat, but then the boiler would burst if there were the usual quantity of heat. So it would be likely to do if there were no outlet. In the present case, if the heat

were powerful, your cold-water supply-cistern might run over with boiling water, and that might be anything but pleasant. To arrest that unpleasantness, and also prevent the possibility of the boiler bursting, you must have a pipe fastened to the top of the boiler, for the escape of steam and greatly heated vapour. That pipe should be quite as long as the height of the supply-cistern, and the open end should be up the chimney, but bent, so as to prevent soot, &c., getting into it, or, better still, if it can be managed, in the open air. These pipes generally throw their heated moisture up the chimney, and no injurious effects result. But in large ranges, and where strong fires are maintained from morning to night, we have known instances where the moisture thus escaping, if it did not considerably damage the jack machinery, so damped the walls that the soot collected faster than usual, and the damp even soaked through the walls and damaged the paint and colouring; while the inside plastering was always liable to fall and impede the draught. As most kitchens are as low as any other part of the building, the best plan is to take such a pipe through the wall into the open air; and all that will ever be known of it, even by the curiously inquisitive, will be seeing a little jet of steam, especially in coldish weather, and when the boiler is extra hot. With such an open steam, or vapour, pipe, the boiler will be safe, whether the water circulates in the greenhouse, or is completely shut off by any of the modes adverted to, and without any appliances of iron blocks, &c.

The idea of the block, however, is a good one, as already admitted. It would be well to have it to slip up and down in a groove; but that is a minor consideration. It should have a good open ring-handle, so that the poker or tongs may easily go through it. We would use it for a double purpose. Most of these kitchen boilers are set so hollow that the fire has access underneath them, and partly round the sides, and often one end, if not more. Well, when you want your boiler comparatively cool, slipping your iron block close down to the bars will stop this draught. We should have mentioned that with plugs or taps, however hot the boiler, you may regulate the heat in your pipes in the house to a nicety by regulating the taps. But to the blocks,—the greater the space between them and the boiler, the more effectual would they be in keeping the boiler cool. But now for the second use. We have an intense frost in January, the cooking is all over by seven or eight o'clock, and we want the pipes to keep hot without wasting fuel. Well, we collect the fire close to the boiler; the block is now placed in front, inside the bars, and close to the fuel; and if we can clap another block, or piece of iron, over the top of the fire, we can get nearly as much heat about this kitchen boiler, with a limited amount of fuel, as if we had constructed a small furnace for it on purpose. All these niceties will well repay those who can take an interest in such things; and, thus managed, many a pretty conservatory might be an adjunct to the sitting-parlour. When such matters, as in large establishments, must be left to servants, and these servants having severally their own distinctive departments, then it would not be advisable to heat gardening structures from fires inside the mansion.

We were closing without noticing your question as to glazing. We prefer wood, but chiefly on the score of painting. If you do not mind that, then the expanding and contracting facts may be got over easily enough, if you insist on easy fitting of the glass, with or without India rubber. See that the squares move easily in their places, having a play of a sixteenth to a twentieth of an inch, and they will be safe from breakage from expansion or contraction.]

DISTANCE OF PLANTS FROM GLASS—RED SPIDER.

"H. B.' would feel grateful for being informed what is considered to be the proper distance from the glass to train Melons and Cucumbers upon trellises (in houses), to prevent burning or scorching the foliage, where shading is not in use. 'H. B.'s' house is glazed with Hartley's rough plate. 'H. B.' has heard that at Trentham they train all kinds of trees as close to the glass as possible. Perhaps you will also oblige him with the proper distance for training the Vine and Peach.

"H. B.'s' Melons last year suffered very severely from the effects of red spider. He found that the remedies he adopted failed to eradicate them, and at the same time the foliage of the plants was much injured. 'H. B.'s' remedy was sulphur upon the pipes and in water. He wishes for a recipe not likely to injure the plants, and at the same time one that is effectual in checking or eradicating this miserable pest."

[When we were at Trentham it did not strike us that the trees were trained more than ordinarily close to the glass. In the narrow upright houses against the walls, and supplied with a hipped glass roof, the walls were covered from top to bottom; and the dwarf trellis in front, just so high as to permit the rays of light passing over it to strike to the bottom of the wall at the back—that trellis was, as far as we recollect, nearer the glass than usual. In such a position, however, there could be little or no danger of scorching. Most of those houses had little or no artificial heat given to them when we saw them. From the upright position of the glass, the rays of the sun would strike such a house most perpendicularly in the winter and early spring months, when most of the trees in the trellises would be comparatively in a state of rest. In summer and autumn, the rays would strike such glass more obliquely than they would do sloping roofs at the common angle of 45° or more. The closer to the glass, therefore, the more light would such plants have, more room be given in the interior, and little or no risk incurred from burning from the force of the sun's rays, with the least care or attention to air-giving. Were we, therefore, to act on scientific principles, instead of mere medium practical utility and ease, we would have moveable trellises for our trees, and moveable stages for our plants, and thus encourage the authors of the models exhibited at Chiswick last season; and then we could bring plants nearer the light in dull weather, and remove them further from it in bright sunny weather. We could also elevate them in mild weather, and depress them when extra cold. The only objection to all such modes is, the great variety of matters in most places, to which a gardener's attention must be directed; and the great likelihood, therefore, of such minutiae at times being neglected, until forgetfulness should be followed by disaster. By using Hartley's rough plate, and with good attention to air-giving, the leaves may be nearer the glass than when common, or even the best clear sheet glass, is used. The outcry against sheet glass, for scorching and burning, is less owing to the glass than to late and careless air-giving. By the old small square system, there were thousands of openings for air, and as many black blotches at the laps, to dull the force of the sun's rays. If a man, even in a bright morning, imitated the snail's race in giving air, but little harm would be done. Be as careless in the case of a house glazed with large squares of clear glass, and the manager will be lucky if the burning and scorching effects of the glass are received as a sufficient excuse for the deplorable results.

Hartley's rough will so far be a safeguard; but even with that we have seen plants injured by delaying giving air too long. Where the temperature will admit of it, it is safest to leave a little air at the top all night through the summer. It will have been seen that the true theory of distance from the glass will greatly depend on the slope of the roof and the directness of the sun's rays. For instance: here is a flat glass-roofed pit, at an angle of 80°, started for Cucumbers in December. Well, in that case, heat being secured, the leaves should just be as near the glass as not to touch it. In such a pit in July we should like the leaves to be fifteen inches from the glass at least. In the summer months, the distance from the glass, if ranging from eighteen inches to two feet, is of less moment if there is no interposing medium between the glass and the plants. For fixed trellises for all the purposes you name, we would have them ranging from fifteen to eighteen inches from the glass. The lesser for Peaches, and the larger space for Vines and Cucumbers. Even then, supposing the Vines all tied to the under side of the trellis, the mass of leaves will be at no great distance from the glass, just sufficient to allow the air to pass and circulate over them freely, as well as beneath them. Under Hartley's glass, if any object, such as mere headway or internal space, were to be secured, an inch or two less would do. Under large squares of common sheet glass, an inch or two more would be advisable. Of course, if inferior spotted glass is used, these spots must be covered with paint or size, or no distance from the glass, or care in air-giving will prevent burning in places. For two years we had the leaves of a tree close to the ground on the back wall of a lean-to house scorched for a space of about fifteen inches square; and after some trouble found at length a starry round spot in the glass, which concentrated the sun's rays. The spot was daubed outside and inside with strong size, and there was no more burning.

RED SPIDER.—There is nothing to be depended on farther than has been adverted to largely in these columns. The strong wash, formed by boiling a pound of sulphur and a pound of lime in five or six quarts of water for twenty minutes, pouring off

when clear, and using a dram glass, or half a quartern of the liquid in four gallons of soft water, for syringing, is as good as any for keeping the pest from getting a-head. Brushing the hot-water pipes with sulphur and water when the water is not hotter than 140° , is also a good preventive, and will help to keep them within bounds. The great thing, however, is to prevent them coming by means of using the syringe freely, and having plenty of moisture in the atmosphere. Whatever may be pretended to the contrary, we believe there is no remedy that can be applied, *after the insects have fairly obtained possession*, that will eradicate them and leave the foliage uninjured. The man who can do that next-to-impossible thing may calculate on setting up a coach and four, if his ambition looks in that direction. The impossibility arises from the fact that, by the time the insects have fairly got possession of a leaf, so as that the leaf presents a spotted appearance, no means exist for rendering that leaf perfectly healthy; and, as was said the other day about green fly, supposing you could kill all the spiders then alive, there would by that time be myriads of eggs for future generations to annoy you. Whenever, therefore, plants get so bad that the majority of the leaves are attacked—and not in a single place, but pretty well all over—the idea of eradicating them from that crop, and restoring health and luxuriance too, is pretty well a desperate utopian game. The great thing is to use preventives; and, in addition to those named, painting the back of the pits, or frames, or houses with equal portions of sulphur and lime is a good one. The second step is to watch for its appearance; and as soon as you see a discoloured spot on a leaf in the hottest end of the house, do not wait for a second, but wash the leaf immediately with a sponge and soap-water holding some size in solution. The washing of a dozen leaves, with the necessary syringings and sulphur-vapourings from a hot-water pipe, not too hot, will often keep the plants free for a season; when the neglect of a day or two will give you months of work—and then all you can do will merely be to keep the insects from getting the complete mastery until the fruit is gathered, when plants, if annuals, may be destroyed, and the place cleaned by smoking with sulphur. This last process must not be attempted with any growing plant, nor yet with a deciduous plant after the leaves have fallen, unless the wood is well ripened, as the sulphur burning will destroy everything green. We have seen the pest beginning in one end of a vine. Half an hour's sponging of the leaves, and the other remedies and preventives, might have settled them. But, left alone for a week, they spread over the whole house; and then, not only was it next to impossible to destroy their numerous generations, but, so far as we know, it has been as yet impossible to make the foliage healthy after being much injured by their attacks. A small hole in a large coffer-dam may be easily stopped. Let it quietly increase to a good size, and the pent-up water will laugh to scorn all mechanical appliances to arrest its progress. Just so with this little insect. Catch it on a sticky sponge, do not give it time to increase—better still, prevent its appearance at all—and it will constitute a matter of no difficulty. Let it take possession, and you may fight and battle with it every day and every night. You may slay your thousands, and choke and smother your tens of thousands; but after all your conquests, the state of your plants will tell you that your victories have been little better than defeats. Where it could be applied without injuring the fruit, size or glue-water would help to arrest their movements. Precaution and prevention will be found to be more within our reach than cure.]

AZALEAS—MESSRS. IVERY.

"In your report of the Crystal Palace Exhibition (page 103) there are two or three mistakes, which we feel assured you will be pleased to correct. In the first instance, the collection of eight Azaleas (for nurserymen only), you have placed Mr. Terry first, which should had been Messrs. Ivery and Son; and in describing the kinds so fully, you omitted the key plant, *Iveryana* (if there were a key plant to the collection), with *Rubra pleno* on one side, and *Glory of Sunninghill* on the other side, in the front row (which last-named you have described as belonging to Mr. Turner). You have, also, in describing the new Azaleas exhibited by us, included *Sir James Outram*, which was exhibited by Mr. Turner. In the class of new plants (Class 25) you have omitted all the best things, except Mr. Veitch's *Pothos* species, which was only placed third, omitting the first, second, and third, and an extra prize of 10s. The first was for the beautiful *Burlingtonia Farmeri*, from Mr. Carson, of Chesham; the second

was for *Genetyllis Macrostegia*, from Mr. G. S. Dods; the equal third was for *Daviesia umbellata*, from Mr. John Green; and the extra prize was for *Azalea Flower of the Day*."—J. IVERY AND SON.

[No man between Dorking and Darnaway deserves to be better reported than Messrs. Ivery & Son; and no one can be more pleased with this opportunity than their humble servant, no part of whose business it is to report, or rather advertise gratis, the prizes awarded to exhibitors at these exhibitions. I never told of all the prizes at any one of the Shows I report—it is no part of my business to tell one of them. If I gave all the prizes at full length free of the advertising fee I should be acting against my own rule of fair play. That I mistook Messrs. Ivery's setting of eight Azaleas for that of Mr. Turner's is the highest plume in Messrs. Ivery's bonnet. I put the highest value on the proper setting of plants with respect to the colours; and hitherto Mr. Turner was the best setter among all the florists, who are notorious for destroying all the effects of colour by their old way of planting their beds and placing their plants; and I have made a great impression on the camp of the florists by holding up Mr. Turner's setting as the effect of a lady's eye, so to speak. Here is a proof of the great impression:—Mr. Ivery studied the arrangement so closely as to deceive my eye at last, and he deserves all the praise I can give. How it came about was on this wise:—At the Crystal Palace the exhibitors and the judges play a game at "hide-and-seek" in the morning before the public are admitted. I begin with the judges; but when I offer to have a hand in the childish game, a policeman pulls me from behind by the tails of my coat, and says he, "You must not go beyond the ropes—the barriers between us and the plants." "But, man alive, how am I to know whose plants I am reporting unless I step over and 'seek' the name of the exhibitor, which they 'hide' beneath that cord?" Yes, all exhibitors see their names on cards placed to their collections, and then turn the card upside down and tack it to the board before the judges begin. Then, if I had to wait till the judges had finished, I must needs get my report from the schedule of prizes in the secretary's office, like other people who cannot report from their own knowledge, or their want of knowledge of plants and fruit; and in that case I should give none of the prizes. One-third of my notes is finished by the time the judges pass and the cards are turned; and for that one-third, the prizes, and the names of the winners I guess at myself, and this is the first time I heard of a complaint on that score. When I came to Messrs. Ivery's Azaleas I could not see the name, and I guessed Mr. Turner. But I shall do so no more. I shall either say No. so-and-so was well grown and well set, or else risk another pull at my tails in reaching over to turn the card.]

Messrs. Ivery are wrong in saying I "omitted" the best new plants; for I mentioned every one which they say I did not mention, except Mr. Carson's *Burlingtonia Farmeri*. That and not saying the prize was to Mr. Green for the *Daviesia* were on purpose, as we three are next-door neighbours, to tease them for being still so childish as to join at "hide-and-seek" on such occasions. Messrs. Ivery were a great deal more to blame for not finding fault with me for not mentioning the six variegated plants of the Belleisle Cress from a brother nurseryman. I neither judge nor give prizes for cut flowers, and I think it is wrong to do so.—D. BEATON.]

GRAND NATIONAL ROSE SHOW.—We take this opportunity of calling the attention of our readers to the Grand Rose Show which is to be held in the Hanover Square Rooms on Thursday, the 23rd inst. The great success which attended a similar exhibition at St. James' Hall last year is a good earnest that the forthcoming display will be eminently successful.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

ANNIVERSARY FESTIVAL.

ON Wednesday last the anniversary dinner of this valuable institution was celebrated in that most appropriate of all buildings for the purpose,—namely, the Crystal Palace, Sydenham.

The day was chosen by Sir Joseph Paxton, M.P., on account of its being the second of the Crystal Palace Horticultural Fête, and as the weather was all that could be desired, the attendance was both numerous and fashionable. The gay variegated costume

of the ladies' dresses, as they flitted about the grounds, or moved among the flowers, was very pleasing and cheerful-looking. We hope they will not be offended when we just hint, in the humblest manner possible, that if they did not take up so much expansion with that horrible iron basket-work underneath their many-coloured muslin they would look much more graceful, and save themselves many indignant sneers. We saw some "cages" in which ladies were walking that *could* provoke nothing but ridicule of no very delicate kind. What will our readers say when we assure them that the great centre aisle of the Palace, in which four waggons could easily drive a-breast, was completely filled by a bevy of six ladies; and the writer of this could not pass without being obliged to break the rank of three on the side where he was. Oh, that every modest maid and matron knew the disreputable origin of hooped petticoats! "They were invented," says Lola Montes, no mean authority on such matters, "by an unmarried lady of fashion, to hide a nameless misfortune; and for which they are admirably adapted."

However, let us get back to the dinner, which to them and to us is a much more agreeable theme. The fineness of the day contributed largely to the increase of the company; and, although about 250 were looked upon as the greatest probable numbers that would be likely to attend, it soon became evident, when the seats were being filled, that a good half hundred must dine in some other place. Mr. Strange, the sole proprietor of the Palace refreshment department, with the aid of Mr. Harker, the toast-master, prepared a second room, where the excluded were made very easy and comfortable. Had Mr. Strange been at all aware of the increased number but an hour beforehand, he would have been able to have placed all the visitors in one room. Mr. Cutler, the Secretary, was equally surprised, and, in one sense, agreeably so, at having such a goodly gathering; but the fault entirely rests with the ladies. Heaven bless them, and deal lightly with their foibles! The day was charming, the occasion inviting, the flowers lovely beyond comparison,—and who ever yet saw a woman that was not passionately fond of Nature's unsurpassable gems? So the mandate went forth to brother, and lover, and husband, and father, and the consequence was, that poor Mr. Cutler was nearly bewildered; Mr. Strange, for a moment, at his wit's end; "Sam Slick" in the chair, gratified beyond measure, his eyes twinkling with unctuous satisfaction; and the fund, the most important consideration of all, largely benefited. Gentlemen of the Committee! there can be no mistake about it; the Crystal Palace on a floral fête day, in the summer month of June, when the green meadows, and the waving woods, and the spangled gardens are in their splendour; when Eve's fair daughters vie with the lilies of the field in the delicate hue and texture of their robes, the strains of thrilling music, and, and,—when iced-champagne is joyous to the eye, nectar to the lips, eloquence to the tongue, and gladness to the heart, which it makes "open as day to melting charity," and awakens all the generous impulses of our common humanity, there can be no mistake about it, that the Crystal Palace is the place, *par excellence*, for gardeners to celebrate their festive rites, and offer sacrifice to the lovely deities of fruit and flowers.

The company being seated, the Hon. Mr. Justice HALYBURTON, the author of the inimitable "Sam Slick" occupied the chair. He was supported by Sir Joseph Paxton, M.P.; Sir Charles Fox; Admiral Cary; General Dickson; Mr. Farquhar, Chairman of the Crystal Palace Company; Mr. Charles Horsley, one of the Directors; Mr. V. C. W. Dilke; Mr. H. Bohn, &c.

The dinner went off very satisfactorily; and the dessert of fruit, which was contributed by members of the Society, was not as fine by any means as we have seen it, but it received warm encomiums from those who were fortunate enough to partake of it. For ourselves, having to cat among the reserve stores of plates and dishes away from the tables, we contented ourselves as well as we could with a sight of what was spread about, somewhat sparingly, on the tables. The dinner over, "*Non nobis, Domine*" was chanted by the professionals engaged.

The CHAIRMAN then rose and said:—"Ladies and Gentlemen,—In all parts of the wide-spread dominions of this country, at every social feast and meeting, the first toast that is given is that of Her Most Gracious Majesty. That toast is never accompanied by any remark or by any preparatory observations, because it requires none. It speaks directly to all the affections of all Her Majesty's subjects, who consider it a great privilege as well as a duty to invoke in that toast, 'Long life and health to Her Majesty the Queen.'" The toast was drunk with all the honours,

the company standing whilst the national anthem, "God save the Queen," was sung.

The CHAIRMAN. "Ladies and Gentlemen,—The next toast which in the natural order follows that of Her Majesty, is the health of the Prince Consort, the Prince of Wales, and the rest of the Royal Family." The toast was drunk with cheers.

The CHAIRMAN. "The next toast I have to propose to you is, 'Our gallant defenders, the Army and Navy.' The approbation that you have been pleased to pass upon that toast shows me how unnecessary it is for me to add any observations to it. The gallant actions of both those highly meritorious and noble services are recorded in history; to those it is not necessary to allude, but the more recent ones, and, perhaps, the most glorious exploits of our army we have only had in telegrams from the East, where we have learned without surprise to see, in one victory after another, how bravely they have conducted themselves. Now that the revolt has been crushed, we require time to gather our senses together, to form a fair estimate of the exploits of our army. Whatever men can do, British soldiers have proved that they are the people to do it, as they have ever done. The endurance, gallantry, fearless intrepidity, and the marvellous manner in which they threw themselves on countless hosts, how they drove them back, and the way in which they succeeded have become the object of envy of all foreign nations, and the admiration of our own. With respect, however, to the other branch of the service, there has not, recently, been any opportunity for showing what they can do, excepting in a few naval tactics, and where they have landed troops in different parts of India. But should the united arms of army and navy be required, we well know that they are composed of the same stuff, the same material, that won laurels for themselves at the battle of the Nile and the battle of Trafalgar; and wherever and whenever the sons are called upon they will be able to give as good an account of themselves and their foes as their forefathers have done before them. I have lived the greatest part of my life at the largest naval station belonging to this country out of Great Britain,—namely, North America, and I had the honour of the acquaintance of a large number of naval men. Of the seniors I say nothing; their deeds are recorded in the naval history of the country; but with respect to the lieutenants of the navy, a more independent, a more brave, a more useful, or a more servicable body of men is not to be found in any branch of Her Majesty's service. The only regret I have is, that they are not better paid, and that their promotion is not more certain, rapid, and somewhat commensurate with their deserts. Having said so much on that head, I think I may say in the company of the ladies that these 'jolly tars,'—a word I like myself, for I am a jolly old man—that these jolly tars are as invincible in love as they are in war. I recollect a story told me of a lady who was suffering very much with a severe pain in the side. She went about complaining of some affection of the heart, which she feared was hopeless, and would become fatal, and she was asked if it was ossification that was the matter with her? She shook her head, laid her hand on her heart, and said, 'Oh! no, Sir, it is something far worse than that; it is a lieutenant of the navy.' Having said this, ladies and gentlemen, I have great pleasure in proposing those toasts, 'the Army and Navy,' coupled with the healths of the gallant General Dickson and Admiral Cary."

The toast was drunk with repeated cheers. Admiral CARY and General DICKSON returning thanks for the gallant services to which they belonged.

Sir CHARLES FOX, in a few observations that were all but inaudible, proposed the health of the President of the Society, the Right Hon. the Earl of Carlisle, which was received and responded to most enthusiastically.

The CHAIRMAN. "Ladies and Gentlemen,—I am about to propose to you what is usually called 'the toast of the evening,' and that is, 'Prosperity to the Gardeners' Benevolent Society.' I assure you when the honour was proposed to me to preside at this distinguished meeting, I demurred very considerably to it; because I felt that there were so many other people, who, both from their knowledge of gardening, their station in society, and their abilities to perform the duties of the office thus devolved upon me, that I should rather have transferred those duties to abler hands. I felt that it was not power of speech that was required, but a person who could extract the money from the pocket in some other way. However, if I were put into the witness-box I could give impartial testimony, and I should with sincerity and truth declare that I know of no body of men in this country for whom I entertain so great a respect and

regard as the gardeners of England. I have visited this country at different intervals and marked its progress, and in nothing have I noticed it so much as in the decorative art of the gardener. I believe we are more indebted to the gardener in this country than those who have lived in the country are aware of. There are one or two things expressed in the Report that I should like to see expunged. I see it called the 'trade' of gardening. Now when I consider the scientific knowledge, the general attainments, the great skill, the particular accomplishments necessary to make a gardener, I don't see why we should call him a 'tradesman.' Not that I advance him to the learned professions, but I would put him among the liberal professions of England. There is also another word in the Report which I should like to see expunged, and that is, that this Society is called a 'charity.' It is no such thing as a charity. There is a great deal in words, more than we think—a great deal in the station of a man, and I would therefore advance the gardener himself to the dignity of a profession. This would raise him in the estimation of his employers; and whilst he and they contribute largely out of their profits to the wants of their aged body, it is very wrong to call it a charity. This Society, by an abstract which has been placed before me, I am told was founded in the year 1838, but did not make any progress until 1840; since then it has steadily and gradually progressed. Well, this Society may not certainly have been called by that name before 1848, but it existed long before then, for our first forefather Adam was a gardener; and I believe myself that if the female gardener had not eaten before she had seen the beautiful fruit which has been distributed here at this particular season of the year, she would hardly have risked so much for an Apple. It must have been very inferior in flavour to the fruit which has been spread before us to-day; still a moral may be drawn from it, which is that a gardener may admonish his wife not to touch forbidden fruit. The pensioners of this Society, I see, are allowed to reside in any part of the United Kingdom. Well, there is very little in that: but I see by the number on the pension list that the average age is 73 years. Gardening must be a very healthful occupation. If the average age is 73, a great many must be over 100 years old. I strongly recommend the occupation of a gardener. I see again that no man can be placed on the list of pensioners unless his character will bear the strictest investigation. Well, I think the Society are not likely to have many applicants, for I never yet saw the man whose character would stand the test of the *strictest* investigation, and I should be very sorry to trust my character to such an examination. The stock is invested in government funds, and the Treasurer is called Robert Wrench, Esq. A capital name, as he will be wanted to put the screw on occasionally; but I hope it will be unnecessary in this case to put the screw on anybody. That's the business part of it: and now, ladies and gentlemen, allow me for one minute more. I hope I don't intrude myself too long upon you. You must recollect that this is the object for which we have met here to-day—it is to aid the benevolent institution of the Gardeners' Society. I said before that we are more indebted to the gardeners of this country—much more than we are aware of. I have been, on a small scale, myself a practical gardener; and I know that the progress of farming is built on the experience of the gardener. Now, there are three important things which you all know must be done if you wish to succeed in farming or gardening, and they are—make your land dry, let it be warm, and keep it clean. Those three great axioms we owe to the principles of underdraining shown us by the market-gardeners; the deep trenching and the deep and beautiful cultivation which they practise. Therefore let us give praise where it is due. Here to-day we are honoured, as every Society must be honoured who has the good fortune to have it, and as every Society must receive a great advantage from it—I mean by the presence of the ladies. I am delighted they are here, because a reciprocal benefit is derived, both by the ladies from the gardener, and the gardener from the ladies. They give a refined taste, by the means of their art, to the ladies of the land, for they do that work which cannot be done without skill; and the ladies, on the other hand, are the great patronisers of the gardeners. Show me a lady that is fond of gardening and I will show you a lady of refined taste, and those domestic qualities by which you can judge of her character. It is a very great advantage and honour to the gardener having had the ladies here, and I think the ladies are in their proper sphere when patronising the gardener, who is contributing so much to their taste and enjoyment. There are two words in this Report which I have said I object to, and here

are some more. There is a plant called 'Prime Minister,' and I should like to hear what Lord Derby would say to this description of Lord Palmerston, or *vice versa*—'Orange-crimson mouth, fine form, excellent spike,' whatever that is, and 'a good bedder.' Then I find in the description of a highly respectable gentleman—who may bring an action for damages,—here is 'Lord Raglan' described as 'having a fine eye, not constant, and with rather loose habits.' There is another gentleman who is connected, as the head, with almost all the religious and philanthropic societies in London—I mean the 'Earl of Shaftesbury.' No more worthy man is to be found; but he is described here as 'a fine plant, showing the white of his eyes.' With respect to the ladies, I don't think they ought to be exposed in this way. There is the 'Princess Matilda,' whoever she is, 'has a rosy blush, and is very free.' One lady, whose name I shall not give, is celebrated for her 'beautiful white neck.' Then there is 'Mrs. Church.' She has 'a full throat, great constancy, and may be depended on.' Now what a character that is, for there are very few that 'may be depended on.' Notwithstanding these latter words that might be altered, there is a great deal to admire, a great deal to applaud, and a great deal of scientific knowledge in the gardener. I should like to know of any man in his profession who gives more scientific practical advice than Mr. Beaton in *THE COTTAGE GARDENER*.* The object of this meeting is to raise a subscription to aid this benevolent institution; it is no charity, and I should be sorry to call it a charity. 'Institution' is not the word you would choose to express a charity by. The ladies are the patronisers in this country of the gardeners and the garden—they are, in fact, the great patronisers of gardening—and they could patronise nothing better. Now, there is one subject I wish to make mention of, and that is, that when people employ a gardener—and no one employs them unless persons of property—I hope the gardener will say, 'We have a Society, and I hope you will, in addition to my salary, contribute a guinea a year to the funds.' If the gardener asks his employers to contribute a sum that is not to go into his own pocket, but to help to provide for his brethren in their old age, he will suffer no depreciation, and find very few to refuse. I throw out the suggestion. Had I happened to have been a humble member of the House of Commons at the time when Mr. Disraeli talked of a £60 savings' bank qualification for a vote, had I the means, I would have given a vote to every gardener in England. Ladies and gentlemen, I shall conclude a somewhat lengthened speech by recommending to your notice the interests of the Gardeners' Benevolent Association; and that it is well worthy and entitled to your support, I am sure you will all agree with me."

The toast of the evening was received in every way worthy of the object.

The Rev. H. M. BELLEW, in a few appropriate observations, proposed the health of the Chairman amid loud cheers. He adverted to the extreme pleasure he derived from the pages of "Sam Slick," at Oxford, and the pride he felt in having the author presiding over them that day. He congratulated the company in being privileged to drink the health of a man so distinguished as their honourable Chairman [cheers]. When he saw a man so distinguished in literature and in law, coming amongst them in his green old age, he was glad of it, and recommended them to drink his health right "Slick" off.

The toast was drunk with rounds of cheers, which were repeated several times.

The CHAIRMAN in replying to the toast said, "I assure you that I never rose before with a difficulty to express what I feel upon occasions of this kind greater than I do at this moment. I thank you with all my heart for the very kind reception you have given to my name—a reception I can never forget. The rev. gentleman who proposed my health, has gratified me in one particular thing, and that is that he has understood the motives from which those books of mine have sprung. I should despise myself as much as anybody could, and look with indifference and contempt upon myself, if I had written a mere jest book. I addressed myself to my countrymen to point out virtues as well as errors, and I, therefore, put a little sugar on the pill before they swallowed it. It is a trick of trade: the druggists understand it, and why should not authors? When severe advice is given to people, it is put off to another day; I choose a vein of humour, and while laughing at what I wrote, it might be that some of those morals I wish to teach were thus inculcated.

* Why has the *Gardeners' Chronicle*, in its report, omitted this paragraph?

The rev. gentleman in ascribing those motives to me has done me honour, for I feel they might be open to a different interpretation to that he has put upon them, and again thank you for the manner in which you have received the toast." He then resumed his seat amidst every manifestation of applause, but in a few minutes rose to proceed with the business of the day.

THE CHAIRMAN. "Ladies and Gentlemen,—The next toast of the evening is, 'The Vice-Presidents of this Institution,' coupled with the names of Mr. Bohn and Sir Joseph Paxton [cheers]. Two better names could not have been selected out of the whole country to have been Vice-Presidents of this Society than these two gentlemen. The former is distinguished alike for his taste in gardening, his literary judgment, his knowledge of ancient pottery, and almost every subject there is. Whilst Sir Joseph Paxton has only to rise and say, 'Circumspice' [cheers]. 'I am the architect of my own fortune, and I am the architect of this building' [cheers]. Speaking of practical men, I have again to mention how much I am indebted to the writers of THE COTTAGE GARDENER. Sir J. Paxton's 'Cottage Calendar' is also very welcome to us [hear, hear]. With respect to the Vice-Presidents, I don't know any men more respected in the community than Mr. Bohn and Sir Joseph Paxton [hear, hear].

MR. BOHN, in returning thanks, said he felt very fully the honour in being selected to respond to such a toast. The Vice-Presidents were very numerous, and amongst them were some of the most distinguished men in the country [cheers]. He begged to congratulate all on the presence of the ladies, who occupied so much space that it was larger than they could accommodate. To our gardeners we owed a great deal, as they contribute so much to the delights we enjoy. They were a very ill-paid body of men—no men so ill-paid as the working gardeners. Day by day he saw them emigrating from us, and we deserved it. A man had only 11s. or 15s. a-week for his labour and skill, instead of 40s. or 50s. He was glad to see the Society increasing so very fast; and he hoped it would continue to do so in order to obtain for each gardener an asylum for old age. He begged to thank them for the manner in which his name had been received.

SIR JOSEPH PAXTON next rose; and when the applause had subsided, he said, that in this great centre of civilisation—London, was contained a vast amount of benevolence, and it was the fittest place for a society such as theirs to take up its position in [hear, hear]. He had a toast entrusted to him, which would meet their approval. He felt long since that the Crystal Palace was the proper place to have a gardener's dinner in, and that day's result had convinced him that he was right. They had 100 more than on any previous occasion [cheers]. They had had the advantage of the presence of the ladies, who, if they had not been present, would have lost a great treat in the observations which had fallen from his friend the Chairman. After settling that the dinner should take place in the Crystal Palace, it was decided that the best time would be at the Flower Show. When the proposal was made to the Directors of the Company, they met it in the most liberal spirit, and on terms, that if they were known, would, he felt sure, meet with their entire approbation [cheers]. In proposing the health of the Directors of the Crystal Palace Company, he would combine with it the name of the Chairman of the Company, his friend Mr. Farquhar [cheers]. The Company was taking a great interest in horticulture, and during their existence, had given every encouragement to the art, which encouragement was being productive of the best consequences outside of the building; extending its influence everywhere [cheers].

The toast was drunk with cheers.

MR. FARQUHAR, in replying, thanked the Meeting for the honour done him and his brother Directors; and assured them there was no subject that more earnestly engaged the attention of the Company than the cultivation of gardening [cheers]. He again thanked them for the honour they had conferred upon him.

THE CHAIRMAN, in very eloquent terms, proposed "the health of Mr. Cutler, the Secretary," than whom no more useful public servant could possibly be.

The toast was drunk enthusiastically.

MR. CUTLER returned thanks, and, in doing so, read the subscription list, from which it appeared that the amount in the total was £340.

THE CHAIRMAN said, "I have another toast to propose; and he who will not wait for it may walk himself off; he is no man, and we don't want him [loud cheers, as the company were departing]: that toast was 'the Ladies'" [great cheering].

The toast was drunk with rapturous applause: after which

the Chairman pronounced 'To our next merry Meeting,' and the company separated.

MR. STRANGE was indefatigable in his attentions upon the company; which is saying a great deal for him, when it is considered upwards of 3000 persons had dined in the Palace that day, apart from the general refreshments.

MR. HARKER was toastmaster with his usual effect; and the band of the Coldstream Guards under Mr. Godfrey played during the dinner. Every one seemed thoroughly to have enjoyed the feast of the day, and went away fully satisfied.

DR. UHLER'S WAY OF REVIVING HOTBEDS. — Having read Dr. Uhler's account of a new way of reviving the heat in hotbeds, by saturating them with a weak solution of glue or any liquid containing gluten, I concluded to test the matter myself this spring. In the latter part of October I filled a range of hotbeds, of about ten lights, with manure, mixed with about one-fourth leaves, and planted them with Lettuces, Radishes, Dandelion, and Endive. By the first of January the heat in the bed had entirely declined, and most of the crop consumed. Wishing to use the same bed for early vegetable plants, such as Tomatoes, &c., I concluded to try Dr. Uhler's plan on part of the same beds, and partitioned off two lights, and, throwing back the top soil, gave the bed a good watering with about two barrels of "swill" or "stop" from an aleohol distillery in the vicinity. We pay six cents a barrel for it, and haul it about a quarter of a mile. Before putting the "swill" on, I made a hole down two feet in the bed, put a thermometer in it, and covered it closely, and, on examination, found the temperature 44°. The "swill" was applied on the 10th of February at noon, and on the evening of the 13th the temperature had risen to 70°, on the evening of the 13th to 76°, and on the evening of the 14th February to 80°. This is the last observation made; but as you wished to have the result, as far as ascertained, for this month's paper, I send it to you. I also yesterday tested the temperature of the remaining lights of the bed, (not saturated with the swill,) and found, by placing the thermometer in a closely-covered hole, that it was still 44°. The heat of the bed is evidently still increasing. — J. H. (*American Gardener's Monthly*.)

TO CORRESPONDENTS.

PINCHING FRUIT TREE SHOOTS (*A Reader*).—We pinch the shoots of our fruit trees now, and throughout the summer; both wall trees and dwarf standards. We take off one-third of the shoot if weak, only one-fourth if of average strength, and merely the point if strong. It is quite true they usually break again; but what of that? We stop these secondary growths by nipping them off entirely.

SULPHURING MILDEWED VINES (*A Country Subscriber*).—Do not syringe the Vines either before or after applying the flowers of sulphur. Apply the sulphur by means of a Boite a Houppes, sold by Messrs. Burgess and Key, Newgate Street, price two or three shillings. Keep the air of theinery moist by watering the paths and borders.

FIGS IN POTS (*Anne P.*).—You are very wrongly informed about the Fig gardens near Worthing. There is no pot culture there. A chief point is to keep the roots unfailingly supplied with moisture. We strongly recommended you to buy Mr. Rivers' little pamphlet, "The Orchard-house." The following is an extract from it:—"To keep your trees as compact bushes, never allow any shoot to make more than five leaves without pinching out the terminal bud—i.e., as soon as the five leaves are developed take out the terminal bud with the nails of the finger and thumb. The tree will, in a year or two, become too much crowded with young shoots; thin them with a sharp knife, leaving no spurs, but cut close to the main branch or stem. Figs require more heat than any other fruit yet mentioned; they must have the warmest corner of the house, as they do not require much ventilation; a house with fire-heat is, indeed, the most eligible place for them; and they must have abundance of water, or the fruit will all drop when nearly full grown, without ripening. The varieties best adapted for pot culture are the *White Ischia* and the *Early Violet*—both most abundant bearers."

COMMONEST PLANTS FOR AN AQUARIUM (*Potamogeton*).—The following may be found in most watery places, and are grown in aquariums. See our reply to a correspondent last week:—*Alisma plantago*, *Anacharis alismastrum*, *Callitriche verna*, *Conferia fluviatilis*, *Lemna minor*, *Ranunculus aquatilis*.

YOUNG CUCUMBERS DYING (*Black Spine*).—If you have plenty of heat, leave air on now at night, as well as during the day, and see that the roots are not suffering from dryness. Do not be satisfied with mere surface moisture. We examined a plant under similar circumstances, and three inches below the surface found the soil dry.

ROSE WITH GREEN CENTRE (*W. W.*).—This is known among gardeners as "the green centre," but they have failed to discover the cause or a remedy. It is a case of morphology, the stamens and pistils being changed into a leafy form. *Souvenir de Malmaison* is one of the varieties very subject to this malformation. We think that the most vigorous are most liable to it; and if so, root-pruning would prevent it, probably. Thanks for the note, which you will see we have published.

WALTONIAN CASE (*Z. Z.*).—In the summer months it needs no heat. Apply to Mr. G. West, Surbiton, Surrey.

INDIAN GARDENING (*Boughspring*).—We have a little work on the sub-

ject, entitled "Indian Hand-book of Gardening." Its author, whom we well remember, was Mr. G. T. P. Speede. It was published by Messrs. Ostell and Co., at Calcutta in 1810, and is probably obtainable there. Messrs. Elder and Co., booksellers, London, are not unlikely to have a copy. There is a supplement giving the native and English names of plants, &c. Your son will also find much useful information in some of the early volumes of the "Transactions of the Agricultural and Horticultural Society of India."

PEA BUGS (*W. Fletcher, jun.*).—If by this name you mean woodlice, which is probable,—as when curled up they look like a pea cut out of slate,—you will find all we can suggest at page 113 of our present volume.

DESTROYING THISTLES (—).—We know of no mode except cutting them down as deeply as possible as often as they appear.

NAMES OF PLANTS (*Sweet William*).—The large flower is *Magnolia purpurea*. The Pea-shaped one is *Ononis fruticosa*. The blue one, *Centaurea montana*. (*W. H.*).—Your "sort of moss," is *Alchemilla arvensis*, or Parsley Peirt. Thanks for the note about Geraniums.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

JUNE 16th. ESSEX. *Sec.*, Robert Emson, Halstead, Essex. Entries close June 1st.

JUNE 29th and 30th. NEWCASTLE-ON-TYNE. *Sec.*, Mr. W. R. POPE, 44, Westgate Street.

JULY 1st, 2nd, 4th, and 5th. SHEFFIELD. *Sec.*, Wm. H. Dawson, Sheffield. Entries close the 15th of June.

JULY 21st. PRESCOT. *Sec.*, Mr. James Beesley, Prescott.

AUGUST 27th. HALIFAX. *Sec.*, William Irvine, Holmfild, Ovenden, near Halifax.

AUGUST 29th, 30th, 31st, and SEPTEMBER 1st. CRYSTAL PALACE. Poultry, Pigeons, and Rabbits. *Sec.*, William Houghton.

SEPTEMBER 22nd. BRIDGNORTH. *Sec.*, Richard Taylor, Bridgnorth.

OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. *Sec.*, Geo. Griffiths, 7, St. Swithin Street, Worcester.

N.B.—Secretaries will oblige us by sending early copies of their lists.

HAMBURGH FOWLS.

WE believe it is beyond contradiction that Pencilled Hamburgs are the best layers among fowls; also, that they are very small feeders, and, consequently, inexpensive to keep. For many years they were known in England as Bolton Greys and Bays; also, in some parts as Chittaprats. About thirty years since they began to be imported from Holland; but the wretched way in which they were packed, having neither room to stand nor to eat, the want of care during the voyage, the long fasting, and the injudicious feeding on their arrival, either caused them to be ropy on their arrival, or to have the seeds of it in them, which were soon developed. Hence they acquired the reputation of being sickly fowls, and it was true of the imported birds. They were obliged to be put in quarantine on their arrival, and, however, desirable the fresh blood might be, it was necessary the new comers should undergo a long probation before they were made use of.

Mr. E. Archer in Silver, and Mr. W. Worrall in Golden, will always be identified with these breeds, as having redeemed them from the sweeping condemnation of fowls without constitution, and also as having shown amateurs what they should be. Their birds have full rose-combs, firmly fixed on the head, ample but not monstrous, well spiked behind, the spike turning upwards; ear-lobes like a new fourpenny-piece; accurately pencilled bodies and tails. Every feather when pulled out, shows eight or ten distinct markings, and the tail-coverts of the hens from seven to ten stripes; clear hackles; no mousing of the plumage.

When young the cocks are speckled, and become lighter as they gain adult plumage; the pullets are often cloudy when young, and the markings indistinct. These improve as they get older. If any capital defect show itself, such as five claws, single comb, or nearly white body, kill at once—these will never improve. But do not hurry to destroy those about which you have doubts. When they are three-parts grown, kill all that are not good. They will only be middling if they live.

The Spangled are still more difficult to judge when they are young, as their plumage is less distinct than the Pencilled at that time. Their combs should be shaped like the Pencilled, but somewhat larger, firmly fixed on the head; ear-lobe faultless white; hens' tails, and cocks' in the Silver, tipped with black; hackle of hens striped; wings laced and barred, ground colour pure white, or rich bright brown, every feather marked with a moon of black, with metallic lustre on its tip; no mousing or mingling of moons, or spots. The under feather of the Golden variety a rich bright yellow brown. It is essential that the cocks, both Silver and

Golden, shall have well-spangled breasts. Black ones are disqualifications. In all the varieties, blue legs.

The Spangled are excellent layers; but, unlike the Pencilled, they will sometimes sit and rear their chickens. The tail of the Pencilled cock should be black for the ground colour, and every feather edged with either silver or bronze.

GLASGOW POULTRY SHOW.

(From a Correspondent.)

THE Poultry and Implement Show here to-day (June 6th) was a very poor affair. There were only eighty entries for fowls. First, second, and third prizes being given where there were only three entries. There was only one pen of Turkeys, and they were the worst I ever saw.

BATH AND WEST OF ENGLAND POULTRY SHOW.

THE Show just concluded forms, as many of our readers are aware, part and parcel of the Bath and West of England Agricultural Exhibition. Notorious as this Society has ever been for the general excellence of its arrangements, and the untiring energy with which such arrangements are carried out, never has any previous meeting been so completely successful as the one of this season.

The laudable efforts of the Committee seemed to meet with the universal response of the inhabitants of Barnstaple; everything on which the eye of a visitor could rest bespoke a great amount of careful preparation for this general holiday. A profusion of evergreens, flags, and banners lined the streets, whilst bands of music added much to the general excitement; and certainly it will be long before the inhabitants meet with a week of such pleasurable recreation at their very doors.

The day previous to the public admission was stormy, accompanied with a severe amount of the heaviest rain. Continuous flashes of lightning, combined with violent thunder, made the prospect dreary enough for the time being; but the next day proved all that even the most anxious among the Committee-men could desire.

On the morrow Nature seemed revived, the glittering sunbeams of early morn had finally dispelled alike both the misgivings of those most interested and the dampness of the preceding day. Packets, railways, and vehicles of all kinds, contributed to the general muster. It will be a scene not readily forgotten by those who witnessed it. All seemed joyous and exhilarating; the happiest of faces were to be met with on every side; the gay holiday attire, too, of the ladies, contributing no unimportant feature to the whole.

The ground selected for the meeting was most extensive and suitable; a few most covetable additions to the accustomed routine of an agricultural meeting proved excessively attractive. The botanist could here enjoy to the utmost his partialities, by careful inspection of a temporary avenue of shrubs, some hundred yards or so in extent; many being of the most rare and valuable character, combined with the utmost perfection of growth imaginable. Again, by those whose misfortune it was not to personally visit the show-yard, the building set exclusively apart for the arts contained a profusion of contributions that will not be readily conceivable, and language would almost fail to describe. In fact, days might be readily spent in the inspection of this portion only of the exhibition, and yet a multiplicity of its beauties be overlooked. No doubt exists but that this combination of interests between agriculture and the arts will be highly beneficial to all parties, leading to much personal consideration among individuals upon subjects hitherto unthought of, and adding a material interest in this meeting among visitors whose only object is sight-seeing. The variety of objects presented then to the attention of visitors caused the grounds to be well filled; and the gratification everywhere manifested proved the labours of the Executive Committee were not misapplied.

We will now at once proceed to a short review of the various classes. *Spanish* fowls were excellent; and we were much pleased to find the all-important requisite of perfection of face did not destroy the character of the birds, as too frequently happens, by involving a deterioration of frame. Most of the birds in this class were faultless, and the now-unnoticed among the remainder would only a very few years ago have proved certain prize-takers.

The *Grey Dorkings* were a truly magnificent collection, most of the principal breeders in the kingdom competing. For perfection of character it is very doubtful if ever so many first-rate fowls were got together of this variety. In this class, Mr. W. Bromley, of Smithfield, Birmingham, secured the silver cup; and as most convincing proof of the merits of his stock, this gentleman also obtained a second silver cup for the best pen of Dorking chickens, only two pens being entered by him for the competition.

In *Buff Cochins*, to the celebrated pen of Mr. Tomlinson, of Birmingham, was awarded the cup, very closely pressed, however, by an excellent pen belonging to Mrs. Henry Fookes, of Blandford; this lady taking both second and third prizes. We very much doubt the policy of Mr. Tomlinson in exhibiting so very frequently his first-prize pen, close confinement and travelling having evidently told most unfavourably on the general health and condition of fowls otherwise so highly praiseworthy. High feeding may certainly ward off the period of ultimate injury, but never obviate it altogether; and failing health will be surely expedited if necessary rest is prohibited.

In *Brown and Partridge Cochins*, Mrs. Fookes, Mr. Cattell, and Mr. Felton, secured the prizes, the competition being a spirited one.

In *Game* (Whites or Piles, Blacks or Brassy-winged) there was a first-rate display, Mr. Dawson leading the way with his well-known pen of Black ones. White Game took second prize, and also third, belonging respectively to the Rev. Mr. Cruwys and Mr. Frederick Sabin. We next approach, perchance, the best class in the Show,—viz., Black-breasted and other Red Game fowls. Reference to the prize list will prove to demonstration these prizes were not thrown away—the trial for mastery being complete throughout, most of the specimens being also in tip top condition. The Duckwings were decidedly superior.

In *Malays* no exhibition we can now call to recollection ever exceeded the Barnstaple one. Among them were the pen of *White* ones, only the week previously the admiration of all parties at Beverley; now, however, their cleanliness proved a bygone, and they had materially lapsed in condition, this alone telling fearfully against them where the trial for superiority was so extreme. Still, however, they managed to obtain a second position. The head of the cock in this pen leaves nothing to be desired; it is perfection itself as to Malay character, and would afford quite a study to any poultry painter. The silver cup, however, was awarded to Mr. Brooke, of Woodbridge, Suffolk, to a pen of marvellously well-plumaged birds. The prize list, if referred to, will convince the reader that almost every principal breeder of Malays contended.

The *Hamburgs* were most creditable: never before did Messrs. Lane, Keeble, Chune, Camm, or Lilly, show so respectable a collection.

The *Polands* were far superior to those generally exhibited.

In the *Any other variety* class, *White Spanish* took precedence. They were fowls of surpassing excellence; and, strange to say, fowls from the same yard have, for three years past, maintained this coveted position. Very good Black *Hamburgs*, *Brahmas*, *Dumplings*, and *Indian Game*, also took prizes or commendations.

In the *Chicken* classes for Spanish, Dorkings, Cochins, and Game fowls, the entries were not numerically strong. Some of the chickens were, however, exceedingly good; still those exhibited bore manifest proofs that the very early-hatched chickens only could stand the test of exhibition at this period of the year. In this present spring most of the second hatches fell victims to the severity of the weather. Hence the limited number exhibited.

The *Sebright Bantams* fully maintained the good name of the Bath and West of England Society for this variety. The White, Black, and Game Bantams likewise afforded the best of specimens.

The *Ducks* were superior, and the *Turkeys* and *Geese* were marvels of gigantic breeding.

We cannot close our review of this interesting Poultry Exhibition without expressing our extreme approbation of the care and attention shown to the birds during their confinement. Entirely regardless of expense, the Committee left nothing undone to add to the comforts of the poultry; and we feel well assured that many pens will receive actual benefit rather than otherwise from their temporary imprisonment. This is saying much, but certainly not more than is deserved.

The prizes for poultry were awarded by George Andrews, Esq., of Dorchester, and Edward Hewitt, Esq., of Birmingham; the Pigeons' premiums being allotted by William Cottle, Esq., of

Cheltenham, and it may be truly urged, that even these long-experienced gentlemen have rarely had a more difficult task assigned them than on this occasion, from the excellence displayed throughout every class.

GUNDLACH ON THE SECRETION OF WAX BY BEES.

(Continued from page 37.)

"In order to ascertain how much honey bees required to form wax, and how often, in a swarm engaged in building, the laminae attain maturity and fall off, I made the following experiment, which appears to me not uninteresting.

"On the 29th of August of this year (1841), at a time when the bees could obtain in this district no farther supply of honey from the fields, I emptied a small hive, placed the bees in a small wooden hive; having first selected the queen bee, and shut her up in a box furnished with wires, which I placed in the only door of the hive, so that no embryos could enter the cells. I then placed the hive in a window, that I might be able to watch it.

"At 6 P.M. I gave the bees six ounces of honey run from the closed cells, which had thus the exact consistence of freshly-made honey. This had disappeared next morning. On the evening of the 30th I gave the bees six ounces more, which, in like manner, were removed by the next morning; but already some laminae of wax were seen lying on the paper with which the honey was covered. On the 31st of August and the 1st of September the bees had in the evening 10 ozs.; and on the 3rd of September, in the evening, 7 ozs.; in all, therefore, 1 lb. 13 ozs. of honey, which had run cold out of cells which the bees had already closed. On the 5th of September I stupified the bees by means of puff-ball, and counted them. Their number was 2765, and they weighed 10 ozs. I next weighed the hive, the combs of which were well filled with honey, but the cells not yet closed; noted the weight, and then allowed the honey to be carried off by a strong swarm of bees. This was completely effected in a few hours. I now weighed it a second time, and found it 12 ozs. lighter; consequently the bees still had in the hive 12 ozs. of the 29 ozs. of honey given to them. I next extracted the combs, and found that their weight was five-eighths of an ounce. I then placed the bees in another box provided with empty combs, and fed them with the same honey as before. In the first few days they lost daily rather more than 1 oz. in weight, and afterwards half an ounce daily—which was owing to the circumstance that, from the digestion of so much honey, their intestinal canal was loaded with excrement; for 1170 bees in autumn, when they have been but a short time confined to the hive, weigh 4 ozs.; consequently 2765 bees should weigh 9 ozs. But they actually weighed 10 ozs.; and therefore had within them 1 oz. of excrement, for their honey-bladders were empty. During the night the weight of the box did not diminish at all; because the small quantity of honey the bees had deposited in the cells, having already the proper consistence, could not lose weight by evaporation; and because the bees could not then get rid of their excrements. For this reason the loss of weight occurred always during the day.

"If, then, the bees in seven days required $3\frac{1}{2}$ ozs. of honey to support and nourish their bodies, they must have consumed $13\frac{1}{2}$ ozs. of honey in forming five-eighths of an ounce of wax; and, consequently, to form 1 lb. of wax 20 lbs. of honey are required. This is the reason why the strongest swarms in the best honey season, when other hives that have no occasion to build often gain in one day three or four pounds in weight, hardly become heavier, although their activity is boundless. All that they gain is expended in making wax. This is a hint for those who keep bees to limit the building of comb. Cnauf has already recommended this, although he was not acquainted with the true relations of the subject. From 1 oz. of wax bees can build cells enough to contain 1 lb. of honey.

"100 laminae of wax weigh 0.024 gramme (rather more than one-third of a grain); consequently one kilogramme (= 15,360 grains), will contain 4,166,666 laminae. Hence five-eighths of an ounce will contain 81,367 laminae. Now this quantity was produced by 2765 bees in six days; so that the bee requires for the formation of its eight laminae (one crop) about thirty-eight hours, which agrees very well with my observations.

"The laminae, when formed, are as white as bleached wax. The cells also, at first are quite white, but they are coloured yellow by the honey, and still more by the pollen. When the cold weather

comes on, the bees retire to the hive under the honey, and live on the stock they have accumulated.

"Many believe that bees are hibernating animals; but this opinion is quite erroneous. They are lively throughout the winter; and the hive is always warm in consequence of the heat which they generate. The more numerous the bees in a hive, the more heat is developed; and hence strong hives can resist the most intense cold. It once happened that I forgot to remove from the door, which was unusually large, of a hive in winter, the perforated plate of tinned iron, which I had fastened over the opening, to diminish the heat in July; and yet this hive came well through the winter, although the cold was very severe, having been for several days so low as 0°. But I had added to this hive the bees of two other hives! When the cold is very intense, the bees begin to hum. By this means respiration is accelerated, and the development of heat increased. If, in summer, bees without a queen are shut up in a glass box, they become uneasy and begin to hum. So much heat is by this means developed, that the plates of glass become quite hot. If the door is not opened in this case; or if air is not admitted; and if the glass is not cooled by the aid of water, the bees are soon suffocated."

The foregoing extracts are taken from F. W. Gundlach's "Natural History of Bees," published at Cassel in 1842; and it is in reference to them that the illustrious Lisbig declares that he is "acquainted with no more beautiful or convincing proof of the formation of fatty matter from sugar than the . . . process of the manufacture of wax by the bee, as taken from observation."

Will no enterprising publisher favour English apiarians with a translation of a work which appears to entitle its author to rank second only to the great Huber himself? This is a question that may now present itself to many, and which also has been unavailingly asked by—A DEVONSHIRE BEE-KEEPER.

HONEY FROM LAUREL LEAVES.

The fallacies advanced by Mr. Wighton respecting beeswax and pollen have been so ably refuted by "B. and W.," that I content myself with cordially indorsing his opinions.

In answer to his inquiry, "If any of your other readers have had their eyes on the Laurels this season?" I would state that I have paid them particular attention, and find my former statement, that bees are in the habit of "*licking, not scraping,*" the backs of the young leaves, fully borne out. There is also no difficulty in detecting "a saccharine sweetness on applying the tongue to the leaves."

As your talented correspondent is in some doubt regarding the source of this exudation, I transcribe a passage from one of my letters which appeared during the winter, and which seems to offer a satisfactory solution of the mystery. "At the back of every Laurel leaf, near its base, and on either side the midrib, may be found two or three small glands by which, whilst the leaf remains young, a luscious fluid is continually secreted."

The correctness of this statement may be readily verified either with or without a microscope; and the result of the observations of others, communicated through THE COTTAGE GARDENER, would be esteemed a favour by—A DEVONSHIRE BEE-KEEPER.

The last fortnight I have observed bees frequent the Laurels in my garden. This recalled to my memory a paper in THE COTTAGE GARDENER some months ago, which mentioned this habit of the bees, and also said that perhaps this spring the why and the wherefore might be found out. I have looked in vain for any further notice on the subject; and, perhaps, sending you an account of what I have seen may call attention to a fact which those who know more than I do may make some use of. I observed the bees always went to the underside of the leaves, near the stem. On examining the Laurel leaves I find *all* the leaves have three, four, or more, oval-shaped, fawn-coloured spots about the size of two pins' heads, generally two opposite each other on either side of the midrib, and occasionally one is removed some little way from it. I have watched, and it is to these spots that the bees always go, and from them seem eagerly to gather something. Some of these little spots I have found covered with moisture.

In this year's leaves these spots may be seen as a mark of darker green on the upper side of the leaf. In some instances I have seen, as it were, the scars of these marks in the leaves of

last year. Can any of your correspondents say what these little spots are?"—FELIXSTOWE.

[The spots are glands, which secrete a juice slightly saccharine. Some think the bees obtain from it honey; and others that they convert it into propolis.—Eds.]

PRODUCTION OF WAX BY BEES.

In your last publication, page 143, a respected correspondent, "B. & W.," makes some sensible remarks in reply to certain opinions advocated of late by Mr. Wighton, and particularly in reference to the mode of production of wax by bees. As my name has rather unceremoniously been introduced into this controversy, a passing remark seems necessary on my part. How it came about I cannot conceive. My memory is none of the best, certainly; but I have no recollection of ever having had correspondence with Mr. Wighton on any subject whatever, and most emphatically I disclaim concurrence in his recently-expressed views on the points at issue. I would only put it for his consideration, whether mere unsupported words and guesses are likely, with intelligent persons, to overturn the deductions of experiment and scientific research.

On the subject of the Laurel, I think I have somewhere thrown out an idea that bees, probably, obtain from its young leaves a portion of propolis.—HENRY TAYLOR.

OUR LETTER BOX.

EGG-EATING HENS.—"In vol. XX. of THE COTTAGE GARDENER I find 'North Countryman's' advice for curing this habit is watching the hen, and taking away the egg as soon as laid, substituting an egg of chalk. This may be all very well on the strength of the old adage, 'Prevention is better than cure;' but I have no time to watch my hen laying, and want a cure. Can you recommend any such recipe? I have tried mixing mustard and Cayenne Pepper, &c., which I remember was successful some years back, and which I have recommended to friends, who all assure me of its success; but now it appears to fail entirely—my hens seem to eat it with avidity. I have tried over-feeding, but it avails not. The hens lay well. The breed is Black Spanish."—S. H.

[We have often known a fowl acquire a taste for the ingredients put into an egg for the purpose of curing her of the habit of eating it. Over-feeding tends to increase the propensity. It induces a fat and loaded inside; the ordinary food is rejected; and, if it can be had, garbage is preferred as food. Lacking that, they eat their own eggs, being nice-hungry. Sometimes, however, it is the shell they want: if so, bricklayers' rubbish should be thrown down in their haunts. Few people have time to watch their hens. We have not, and therefore we are happy to give you the result of our experience. We have had many cases of egg-eating; and though we did not cure them, we tired the hens out by laying sham eggs about made of a hard material, and by taking care always to have four or five in the nest, clean, white, and hard as iron. Chalk will not do, as they pick pieces off; but good composition eggs beat them. They are very inexpensive, and may be had at Mr. Bailey's, Mount Street, London.

HAMBURGH (D. B.).—Your queries are answered in a previous column.

YOUNG PARTRIDGES (W. J. G.).—If you never intend your Partridges to fly, by all means pinion them by cutting off the wing at the spur, but as low as possible without cutting through the first principal joint. It should be done as soon as the wing is thoroughly formed and feathered. If you think you would at any time turn them out, be content now with cutting the feathers. You must wait till they are thoroughly formed and cut down to the quill. This will require to be repeated twice every year. Birds do not suffer from being pinioned, and it is the most secure plan.

BATH AND WEST OF ENGLAND SOCIETY'S SHOW.—An error was made in my address, which I think it better to correct. I beg to say that it is not *Rowdfield Farm*, Devizes, but *Rowde*, Devizes.—GEORGE SAUNDERS SAINSBURY.

WEIGHT OF SWARMS—PRICE OF HONEY (F. H.).—As regards the average weight of first, second, and third swarms, it often varies according to season, and other circumstances of the stock-hive. The state of the weather frequently operates to delay the issue of a prime swarm; in which case accumulated numbers add to its strength, and, of course, in the same ratio the subsequent issues are diminished. A fair weight is about four pounds. It may be some kind of guide to give the following table from Key's "Treatise on Bees," probably a near approach to truth:—

	lbs.	oz.	dr.
23,000 Bees, constituting a good swarm, will weigh	5	0	0
100 Drones, weigh	0	1	0
290 Workers	0	1	0
4,640 Ditto (Mr. Taylor says 5,000)	1	0	0
1,330 Ditto, a pint in measure	0	6	5

With respect to your question as to "the best way of disposing of honey, and what price ought the best virgin honey to fetch," local circumstances must determine. In most districts purchasers are to be met with at prices governed by the demand, and, of course, influenced by the relative productiveness of the season. Otherwise, the metropolis presents a constant resource, in the absence of other channels. As to the meaning of the term "virgin honey" it is a somewhat vague one. It is commonly used to define the honey of the same season, whether produced from an old or new family of bees. Others restrict the definition to honey collected by a virgin swarm; that is, a colony issuing from a swarm of the same year, as does Dr. Dunbar. Probably it is not of material importance to reconcile such discrepancies, so long as the main point is understood between buyer and seller.

WEEKLY CALENDAR.

JUNE 21—27, 1859.

Day of Month.	Day of Week.	JUNE 21—27, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon R. and S.	Moon's Age.	Clock bef. Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
21	Tu	QUEEN VICTORIA PROCLAIMED.	30.260—30.256	84—47	N.E.	—	44 af 3	18 af 8	22 11	20	1 19	172
22	W	Sun's declin. 23° 28' N.	30.298—30.278	86—46	N.E.	—	45 3	19 8	34 11	21	1 32	173
23	Th	Tristania nerifolia.	30.326—30.193	88—48	N.	—	45 3	19 8	45 11	22	1 45	174
24	F	MIDSUMMER DAY. NATIVITY JOHN	30.262—30.158	73—42	N.E.	—	45 3	19 8	57 11	23	1 58	175
25	S	Oxalis elongata. [BAPTIST.	30.298—30.147	78—45	N.W.	—	45 3	19 8	morn.	24	2 11	176
26	SUN	1 SUNDAY AFTER TRINITY.	30.068—30.001	83—51	W.	—	46 3	19 8	13 0	25	2 23	177
27	M	Tristania triphylla.	30.097—30.032	79—35	N.	—	46 3	19 8	35 0	26	2 36	178

METEOLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 73.4° and 50.2°, respectively. The greatest heat, 93°, occurred on the 22nd, in 1846; and the lowest cold, 30°, on the 25th, in 1855. During the period 118 days were fine, and on 96 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

MANY of the finer kinds of hard-wooded plants—such as *Boronias*, *Epacris*, &c.—will now be out of bloom, and will require cutting in rather closely, to form neat bushy plants. Some of the greenhouse plants will most probably require shifting, and should receive that attention now, or, at latest, by the middle of next month. Keep a sharp look out for insects of all kinds, and also for mildew; and give the plants, if the weather is dry, a sprinkling once or twice a-week from the syringe or garden engine.

NEW HOLLAND PLANTS.—If any are retained in the house, let them be placed where they can have a sufficiency of light and fresh air, and at the same time in a place where the sun has no power on the pots; but if such cannot be avoided, place the pot containing the plant in another two sizes larger, and fill the intervening space with moss.

PELARGONIUMS.—When out of bloom, they should be placed in the open ground for a fortnight or three weeks to ripen the wood before they are cut down.

SCARLET GERANIUMS.—To prepare them for winter blooming it is advisable to place the pots during the summer on a hard bottom out of doors and in the full sun, and to pinch out the flower-stems as they appear. To be carefully attended with water.

STOVE AND ORCHID-HOUSE.

Keep up a kindly humidity by frequent syringings, and keeping the floors, paths, &c., damp. Many of the stove plants—viz., *Clerodendrons*, *Erythras*, *Gardenias*, *Ixoras*, *Jasmines*, *Liliums*, *Pergularias*, *Stephanotis*, &c.—may be removed to the conservatory, where the flowers will attain a deeper colour and retain it for a longer period than if they had remained in the stove.

EUPHORBIAS.—Propagate *jacquiniiflora* and *fulgens*, and grow them on a successional system of culture for furnishing the conservatory and stove throughout the autumn; winter, and spring.

GESNERA ZEBRINA.—Keep up a succession in various stages of growth, and place another batch of tubers in a pan.

FORCING-HOUSES.

Give particular attention to the preservation of the foliage in houses where the fruit has been gathered, keeping the atmosphere cool and moist; and give the trees an occasional washing with the engine, to keep down red spider and the leaves clean and healthy.

CHERRIES.—When the trees are planted in the house, and the fruit has been gathered, give all the air possible by throwing it entirely open. Give them a good washing occasionally with the garden engine. When the plants are in pots, it is advisable to place them on a hard bottom on the north side of a wall or fence.

MELONS.—Bottom heat is necessary for their healthy growth; without it a check would be given that would be sure to produce a most injurious effect on the swelling

fruit. Water to be given to the plants overhead occasionally.

PEACHES.—Continue to maintain a moist, healthy atmosphere while the fruit is swelling. Give air sufficiently early in the morning, to prevent the sun scorching the foliage. Syringe and shut up early in the afternoon.

PINES.—Continue to provide proper bottom and surface heat, and give attention to airing, watering, syringing, and shifting in due time. By such means a large amount of healthy growth may now be secured for the fruit-swelling and succession plants. The plants swelling their fruit to be also favoured with a high temperature, a moist atmosphere, and plenty of water, and occasionally manure water at the root. If worm-casts appear in any of the pots, water with lime-water in a clear state.

VINES.—As the dry atmosphere necessary for the preservation of the ripe bunches is conducive to the increase of red spider, the sulphur must be immediately applied as advised last week. Discontinue the use of the syringe as soon as the succession crops begin to ripen. Check the growth of laterals by timely pinching. Give the final thinnings to the latest Grapes; and as they are frequently required for winter use, a good thinning should be given, as crowded bunches and berries will not keep late in the season.

WILLIAM KEANE.

IRISES AS BEDDING PLANTS — CRYSTAL PALACE ARRANGEMENTS — CROSSING GERANIUMS.

ON a review of the array of the spring flowers which have been enlisted under our banner, the right position in the lines has not been given to a Crimean hero—the *Iris pumila* of many colours, true blue and bad yellow being predominant in his race and family. The blue, or purple blue, *Iris pumila* is very common in English nurseries, and very uncommon in English gardens, flowering from the middle of March to a late period in April; very gay, very florid, very dwarf, and the very easiest plant in the catalogue to remove any day in summer or winter. A row of this *Iris*, in kinds, would come in next behind a row of *Crocuses*; and if there is a white variety of *pumila*, as there is said to be, the same way of mixing the colours as in a row of *Crocuses* could be carried out on the same plan—a blue *Iris*, a white *Iris*, then a yellow *Iris*, or creamy yellow, then a primrose, and a blue, and so on all along the line.

The primrose-coloured *Iris pumila*, which Her Majesty noticed so particularly, was exhibited at St. James's Hall in April, 1858; and a few days afterwards Mr. Rivers sent a plant of the same in bloom to see if it were the same thing, and said he had "loads" of it. This spring I saw four kinds, or varieties, of this *Iris pumila* by the hundreds in the private reserve ground at the Crystal Palace, all sent from the Crimea by a British officer. There were three shades of light yellow and the blue; some of the yellows with a thick blotch of blue or purple on the ground colour; some

with mere streaks, and some quite free from stains; and when the Crystal Palace people bring out their style of ribbon you will see all these varieties, and all the other kinds of *Iris pumila*, in the first or second row. Or by giving them an Italian winter, high up on an airy shelf in the orchard-house, they would come "of themselves," in aid of the early-forced flowers in January; and believe me the bluish-purple of the *pumila*, at that season, if it is obtained thus without forcing, is as rich as any tint of the same kind in all the *Gloxinias*.

It takes a long time to get up flowering plants of *Iris pumila* from seeds. Some I sowed in 1856, direct from the Crimea, will not bloom for a year or two. Mid-summer is a good time to divide and propagate all the fibrous-rooted Irises that have bloomed; and so on through the summer divide, cut, and transplant full in the open sun any kind as soon as it is out of bloom.

The fourth row on the ribbon border at the Experimental is a permanent row of the *Iris tenuifolia*, a bulbous kind near to *xiphium*. It blooms from the middle of May, and is now in full beauty from end to end. Soon after flowering it dies back, and you see no more of it till next April. It is planted at a yard apart, and a kind of *Narcissus* comes in between each pair of Irises. They never disturb the "bedding rows," and they are not disturbed themselves. A row of the true *Iris xiphioides*,—the head of the great bulbous Irises,—would make even a better row than that; and if any one will send me a hundred "roots" of *xiphioides* to try against *tenuifolia*, I shall soon be able to tell the difference.

But, it was about the bedding this year at the Crystal Palace that I intended more particularly to speak. Two-thirds of the "planting out" were finished there on the day of the grand Show—the 8th of June. The style higher and more rich than ever. There will be hard upon three miles of edging of *Mangle's Variegated Geranium* alone. It takes the place in edging which the *Cerastium tomentosum* occupied last year. The two chain-patterns in the sunk panels are edged with it throughout, and it girdles the Rose Mount, I think, five times; and if that is not aristocratic planting, I should like to know what else it is. There was an avowed fault last year in the planting of all the match beds going up to the Rose Mount: there was no attempt to match, contrast, or harmonise the plants in these beds. The same avowal is, or was, in progress this year when I passed up to the Mount; but a new bed there, with a new edging to it, made up for the "cock-eyed." A game cock looks so high he cannot see what is close to his feet; and in private criticism one will need to be "cock-eyed" to look over pigs with one ear, and even little faults: and I see no harm in making "cock-eyed" a public insinuation against myself; but a man must be "cock-eyed" if he cannot see a pig with one ear straight a-head of him. I think I heard some one say that such a bed was tried somewhere; but I never saw it. It is composed of, I should say, last-autumn-struck cuttings of one of the New Zealand *Veronicas* after *speciosum*, perhaps *speciosum* itself, for there was no name, or tally, to the bed. It is a public misfortune to see plants and beds new to one, and not be able to make out the name. In Suffolk they teach botany to the girls in the parish school; but here at the Crystal Palace Betsey Baker herself is not taught to know a *Geranium* from a *Calceolaria*; while at Kew and Hampton Court every bed and row is beautifully named in a plain hand, or in print.

But about the new edging to the new *Veronica* bed. It is on the same principle as the variegated *Geraniums* are used, but with a variation:—the variegated leaf is the thing in the first; and the variegated flowers are the principal in this. Who will make out this new edging before this day week? I told the one-half here, and surely you will make out the other half in a week. The grand edging plant, however, this year is the *Tropaolum elegans*, to which they allow one foot space to cover and

run in; and the plants are put at ten inches or a foot, in single rows, for these edgings. You recollect the straight row of beds along the lower terrace-walk, between the two chain-patterns, is made up of a circle and an oblong alternately, the circle (being lately made pincushion fashion) with a standard in the centre. The half of that row is on one side of the middle cross-walk, up and down, and the other half on the opposite; and I think there are twenty-one beds in each half. At all events, both sides of all the oblong beds (each eighteen feet long) are edged with *Tropaolum elegans*—that is, the side next the walk, and the side next the grass. Nothing more gorgeous was ever thought of. The pincushion-beds were not planted then; so we must put off the details of the arrangement of the colours till the beds are seen in bloom.

The beds round the pedestals, in the half-circle of the *Araucarias*, in the centre of the terrace, are all of *Tom Thumbs*, or other scarlets, in three rows, and an edging of the *Flower of the Day* on each side of each bed. The chain-patterns are differently planted this year, by having a row of scarlets running through the centre of the yellows. Two divisions of the slope up the Rose Mount are planted with purple *Verbena* in seven rows each, with a row of *Mangle's Variegated Geranium* along the bottom of the *Verbenas*, and two rows of the same along the top of the division. These three lines of *Mangle's* are carried right round the Mount, outside the arcades. The other two divisions of the slope are planted, one with a *Horseshoe Geranium*, probably *Village Maid*, with *Mangle's* round the top and bottom as above, and one with *Punch*; and the last two divisions of the slope with *Calceolarias* and *Mangle's Geraniums*. The narrow border round the inside of the arcades on the top of the Mount is planted with one row of *Tom Thumb* and two rows of *Calceolaria* all round. The six beds in the six sunk panels on the top are thus planted in match pairs: two with scarlet *Geraniums* in the centre, one row of *Ageratum* round that, then a row of *Calceolaria*, and the outside row of *Heliotropes*. Two beds with blue *Salvia patens* for centre, a row of *Ignescens superba* *Geranium* round, then a row of *Calceolaria*, and a lilac *Verbena*, or lighter than lilac, round the outside. The last two have the old pink, or purple, *Nosegay Geranium* for the centre, one row of *Calceolarias*, one of *Tom Thumb*, one of *Verbena*, one of *Lucia rosea* *Geranium*, and one *Verbena* round and round. All this is different from former years. The first angle, or corner bed, opposite the entrance from the railways, is of the *Ignescens superba* *Geranium*, which does wonderfully well on or round the Rose Mount. The old *Diadematum* would do equally well there; and *Diadematum rubescens* the same, and would be the best of the three. The *Imperial Crimson* would glisten again on these slopes; and with a row of *Harkaway*, or, better still, *Harry Hicover*, same size as *Harkaway*, all round it, would be a striking novelty among so much common-place scarlet and yellow. And in no place in England would the "Doctor's bed" look better—that vigorous Irish doctor, who introduced equal quantities of white *Petunias* and scarlet *Geraniums* mixed in one bed. The "Doctor's bed" is the one there is most ado with at the Experimental Garden; and it is worth all the pains, for it is a first-rate thing.

Mr. Eyles is now prime minister at the Crystal Palace. The whole weight of the garden is upon his shoulders. And if what everybody says is true, the Crystal Palace Company were most lucky in securing his sound, practical, and practically scientific head to lead the gardeners in the way they should go; for all the gardeners like him and Sir Joseph Paxton much, and all the rest who come near them say the same thing. I found them both studying one of the most useful subjects in gardening. They told me as far as they went; and when they come to the end I shall have a share of the pudding. Sir Joseph looks better than I have seen him since the anxieties of the Crystal Palace of 1851 began. He is as

full of the subject as if he had never been in parliament, and just the same man as he was thirty years ago, only not quite so young or so larksome.

Speaking of flower-beds with so many lines, and such and such colours, made up of plants the most dissimilar in habit, leaf, and looks is all very well in our own day; but in history our reports and our accounts of our age in gardening will only form the bottom—the foundation-stone of wonders. People will wonder some day at our lack of taste and judgment in the midst of such loads and loads of the raw material, out of which judgment could create and command taste itself. We go on from year to year as if judgment had settled what taste is, and that it stood in no need of refining. Now follow me to-day, and go a-head yourself to-morrow; fix in your mind what you really want; store in your memory a biographical digest of all the leading plants which are now used in bedding out; and ask yourself this simple question, Is the art of man capable of rendering these subservient to my wants and wishes? I want all the plants in each one of my beds to be exactly of the same style of growth; and I must have the colours to agree harmoniously, or to contrast without violence—a thing which may be explained by supposing a black Oak placed by the side of a white Scotch Fir. The contrast is complete in the colours; but the violence of the transition from the round-headed, gnarly Oak to the slim, sleek, spiral aspect of the Fir is so great as to drown the contrast between black and white: therefore, as the French dyer said, there is harmony in contrast, and I must have it so. No Verbena or Calceolaria will do for me to divide a *Tom Thumb* from a *Lucia Rosea*, as was of necessity the case in No. 59 on the top of the Rose Mount at the Crystal Palace. Another Geranium, whose flowers are as distinct from those of *Tom* and *Lucy* as the flowers of any Verbena can be, be first my aim, and then my fancy:—I must first bring such a Geranium into the world for such a purpose, then use it to demonstrate the purpose to the rest around.

Thus you may argue and act in respect to every family from which a member is taken to fill up your beds: and to save you time and some vexation of spirit, allow me now to tell of the private history and domestic habits of one of the families with which you must largely deal—the Geranium family. Like the British family, there are three great sections—English, Irish, and Scotch. The greenhouse Geraniums, from which the Pelargoniums have come; the Scarlets, or Horseshoes; and the miffy lot with gouty and fleshy roots. Not one from any of these divisions will cross with any one in the other two divisions. The divisions are, therefore, as natural as true genera for the purposes of the breeder. There is nothing in existence to prove that two plants from two natural genera have ever yet been successfully crossed; and all that has been said to the contrary is apocryphal. Such questions, therefore, as “What may I expect by crossing *Tom Thumb* with one of the Fancies?” may be put on the shelf. The great divisions are also divided into sections; and there are plants in each section which will not cross out of that section, but these are too numerous to mention in a general view of the subject. There are Geraniums which will not cross nor seed but under peculiar circumstances, and these are also too numerous to mention. The state of the plant at the time of crossing is a great mystery; and the seedlings are materially influenced in their properties by the state of the parent at the time of crossing. Forcing a Geranium (a bedding Geranium) to get early seedlings has a very marked influence on the seedlings, which are invariably more flimsy than the parents would produce without forcing. The parents, at the time of crossing, should be fully established plants: not too strong, as in the open ground after the middle of August; nor too weak, as happens sometimes in May. The shoot should be stopped at the joint above the truss; the first two flowers should be discarded; the next four to be crossed; and the rest to be cut down as soon as they

can be handled. The plant to be liberally and naturally treated all the time it is ripening the seeds.

D. BEATON.

A FACT WORTH KNOWING IN CELERY CULTURE.

I HAVE not planted out the first crop so early as usual this season; and yet, nevertheless, I have been asked several times if I am not afraid the plants will run before coming to table. Now, with my first crop, however early, I scarcely ever have a run-head. It is quite common, however, to see rows, or beds, with the great proportion of the plants bolted, when, of course, they are useless for the salad bowl. I think that, years ago, I directed attention to the cause of this in these pages; but, without any great stretch of egotism, I believe the subject to be so important as to be worth restating. I am confirmed in this by two circumstances. The first is, that those who have followed the course indicated have expressed their satisfaction with the consequent success; and the second is, that I have had more inquiries about the matter than I can find time to answer privately.

The great cause of failure with early Celery is just attending to the directions given in almost every calendar of operations. “Put a little earth to the Celery plants. Earth up the early Celery by degrees, giving a little at a time, and well firming it about the plants.” We are not to be greatly blamed if we follow the highest authorities, even if such following should lead to failure. A person is very apt to meet with the reward of sarcasm, and pool-poohing, if a little consideration should lead him to adopt and recommend a system directly opposite. What answers best should be tried and followed, whatever be the voice of authority. One season, in the case of those who have early forward plants, will determine the whole matter. The “eating the pudding is the best way to test the mode of making it.” Nevertheless, some people, and I hope many, like to see their way before them, and know the principle on which they are acting, whether it is making a plum pudding, or growing a Celery stick. Well, to make them just as wise as myself, I would request them to notice, in their country wanderings, whether they find wild Celery growing freely on the top of a dry bank, or in the bottom, or by the sides of a ditch or morass, where the roots can have free access to water. If the former, then the present general system of culture is *right*, and my idea is wrong; if the latter, then it almost amounts to conclusive evidence that the general mode of treatment is wrong.

There can be little room for disputing that the Celery is naturally a ditch or morass plant, and, therefore, requiring abundance of moisture at the roots when freely growing. It is just as generally admitted that it is naturally a biennial—that is, sowing its seeds and growing one season, and blooming and ripening its seeds the next. Gardeners well know, that most biennials may be made to bloom in one year, by sowing early in extra heat, planting out, encouraging to grow, and then, from dryness or other means, so discouraging mere progression in growth as to prompt the plant, in self-defence, to throw up its flower-stalk. The extreme of fertility in seeds will, therefore, in general, be opposed to the extreme of luxuriance in growth. The same fact applies to the vegetable and the animal worlds. Plethora is opposed to reproduction.

Now apply these facts. There is no difficulty in getting the biennial Celery to throw up its flower-stalk the first season. This is such an evil, that many content themselves with getting a stick of Celery after the long, cold nights have come in. All their attempts to have it nice in August and September have only given them bolted stalks. How was the feat accomplished? Thus:—the plants were sown in heat—say, in February or the beginning of March (I have, in years gone by, sown on the

1st of January, and had scarcely a run-head), were pricked out when handleable, planted into an intermediate bed to encourage a mass of fibres, and were turned out at the end of May, or the first days of June, into trenches or beds, well dug and moderately enriched with rotten dung. The plants, never suffering from want of water, grew away famously, especially if some higher crop shaded them from the very brightest of the sun. All look so well and promising that it is confidently expected there will be no bolters this year. But the growth goes on so well, that, to encourage and hasten them on, a little earthing up is given—say a couple of inches; in a week they get a couple more; in a fortnight four or six inches more; and, by-and-by, a few inches more; the soil being placed close to the plants, and the ridge left in somewhat of a conical shape, that it may look nice and throw past the most of the rain, if any should come. Now the first earthing up would do little harm, as a soaking rain, or a good watering, would penetrate the two inches of loose soil. After the next earthing, watering would be unthought of. After the next, it would require almost a deluge to get to the roots, but water is the last thing thought about. All goes well until about taking-up time, when the flower-stems appear here and there along the rows, and in greater numbers when examined beneath the surface of the soil.

The earthing has kept water from the roots; the digging by the sides of the trench has placed the plants more on the top of a hedge bank than in the bottom of a ditch; the large luxuriant leaves, in a dry July or August, have been perspiring pounds of water into the free atmosphere; and the poor roots are at their wits' ends to gain a supply by absorption. When you dig them out, you find that they and the earth about them are as *dry* as an old wig fastened to a pole in a barber's shop; and yet we wonder and wonder why the Celery plants throw up their flower-stalks when we give such a check to growth by our mode of treatment. The dryness at the roots, hardly ever thought of, is the cause of the disappointment.

Reverse the process. Proceed as above in the first stages, only be careful to remove all suckers from the plant before planting. Use rotten leaf mould, &c., in moderation for enriching the soil, in order that the growth may be moderate instead of over-luxuriant; and thus the stalks sweeter and more easily kept, as very large heads are apt to be destroyed from water lodging in the centre and not being able to get out. Use plenty of water in dry weather; and, if short, resort to surface stirring and mulching, to prevent its too-free escape by evaporation. Examine the plants frequently, and remove everything like suckers. As they grow freely, after being well watered from one to two inches of earth may be placed round them, which will so far prevent moisture escaping; and this is all the earthing they should receive until about three weeks, or a month at farthest, before you wish to take up the plants for use. In the interval you can water the plants to keep up active growth; and the rains of heaven will have free access to the roots, with not more than from one to two inches of covering. I prefer the smaller quantity. Under this treatment the leaves will be apt to spread; and the centre of the plant will not rise so freely as by the bit and bit earthing up. To counteract these disadvantages, the plants are tied up either separately or by a string going the length of a row or bed; and which, passing from plant to plant, can be raised higher at pleasure, and be removed altogether if desired after earthing up. This tying keeps all the leaves upright and nicely together, encourages the centre of the plant to rise without *bolting*, and commences blanching in the centre almost as well as several small earthings up, while no check for want of water need be felt at the roots. After giving a good soaking at the roots, a fine dry day is chosen for earthing up. The earth may be piled at once as high as the tying—say from twelve to eighteen inches from the surface; and

in three weeks White Celery, and in four weeks Red, will be in first-rate order for table, and scarcely a run-head to be found. Owing to this simple precaution of preventing the roots getting dry, I have generally far less of run-heads in early Celery than among the later crops, and chiefly because the latter are often left to shift more for themselves.

The same principle is adopted with the later crops as to not earthing up too soon, but not carried out as to the one earthing; for by the middle and end of October the force of the sun is more limited, evaporation from the foliage greatly reduced, or counteracted by heavy dews; and, therefore, if the earthing up is done then at repeated times, there is less danger of perspiration from the leaves exceeding the power of absorption by the roots. Besides, the weather is often so changeable that we are glad to give all the Celery a help, instead of waiting until we can thoroughly finish as we go. Excessively high earthing up I consider worse than lost labour at any time, as from a foot to fifteen inches is generally as long as Celery is sent to table.

The result of my limited practice and observation is, that whenever, from whatever cause, or at whatever time, the leaves of Celery perspire more moisture than the roots can easily absorb, there will be formed a disposition in the plant to throw up its flower-stalk, and thus perpetuate its kind, when it cannot gain increase to its size by mere luxuriance of growth. While none will be more ready to attend to the opinions of others, I confess I should be gratified if a number of readers would, in the coming season, try the plan that I have mentioned above, and tell us by Christmas the result of their experience, whether favourable or otherwise.

R. FISH.

OAKLANDS HOUSE.

THE SEAT OF SAMUEL ASHTON, ESQ.

It is notorious that the culture of plants round Manchester has made rapid progress within the last seven or ten years. I know no city or town away from the metropolis where plants are so well grown, and in such numbers, as they are by the gardeners to the wealthy Manchester gentlemen. One reason is evident—and that is, those gentlemen have a taste for good gardening, and spare no expense in carrying out that taste. They are, or have been, first-rate men in business, and bring the same indomitable will and enterprising spirit into their gardening recreations. They will have good houses properly heated; they will have the choicest and rarest plants; and, lastly, they will employ gardeners of the highest ability, paying them well to manage their gardens in the very best style. Is it then a matter to be wondered at that they succeed so well?

Amongst those spirited gentlemen, the one whose name stands at the head of this paper is second to none. He has formed a beautiful place close to the pleasant village of Godley, near the town of Hyde, which is a short ride of seven miles from the London Road Station, Manchester.

I have watched the progress of this garden for nearly twenty years. It has at length arrived at such a state of excellence as to warrant my giving a report of it. Mr. Ashton has made it entirely what it is. The mansion is a very handsome building, placed on a gentle eminence, and having pleasant views of the Cheshire and Yorkshire hills. The plant-houses are placed partly at the bottom of a valley, and partly on one side. The opposite bank is laid out in terraces, with gravel walks, grassy banks, and sloping shrubberies. At the lower end of this valley there are some fruit-houses for Vines and Pine Apples; at the other end is an extensive rockery covered with hardy Ferns. The side on which the plant-houses are placed is a grassy slope, which sets off the houses to great advantage. Now, to get to this charming little valley

from the house you have to wind round a projecting hillock, and pass about a small wood; on the right hand you get a peep now and then into the open country; whilst on the left you look down into a glen, through which a small rivulet wends its shining way. This wooded walk is quite refreshing on a hot summer's day. At length a door bars the way; when that is opened, the valley with its glistening glass-houses, its deep green grassy slope, and terraces of many hues, bursts upon the delighted vision. A more unique scene of beautiful English gardening I never saw. I do not say too much when I assert that the whole place is admirably kept.

There are two head-gardeners, father and son. Mr. Sidley, sen., is an old and respected friend of mine. Under his charge are the fruit-houses, the kitchen garden, the conservatories near the house, and the pleasure-grounds outside the valley before described. His son, Mr. Joseph Sidley, jun., born, I believe, on the premises, and taken into the garden after his schooling days were over; after serving under his father for some years, spending some years in Messrs. Rollison's Nursery at Tooting, has the whole of the plant-houses in the valley and the pleasure-grounds therein placed under his charge.

Having introduced the place, its spirited owner, and his clever respectable gardeners, to the reader's notice, I now proceed to notice briefly the plant-houses and their most remarkable contents.

The orchid-house, 54 feet long by 18 feet wide, is a span-roof; and close to it is the Fern-house, the same length, but two feet narrower. These are situated on a platform at the lower end of the valley. They are heated with hot water on an efficient principle; and the plants in them appear to like their habitation well. The collection of orchids from the East, such as *Aërides*, *Angraecums*, *Saccolabiums*, *Vandas*, *Dendrobiums*, *Cœlogynes*, &c., are partly grouped together on a central stage. The hardier orchids, such as *Cattleyas*, *Lælias*, *Lycastes*, &c., are placed on side platforms, where, of course, the heat is more moderate. The following were in flower in March:—

Cattleya bulbosa, a rare species, with deep rosy sepals and petals, with yellow spot on the lip; *Lælia Boothiana*, very like *rosea*, with round, smooth, pseudo-bulbs; *Cœlogyne cristata*, several spikes of its large pearly-white blossoms; *Cypripedium villosum* four blooms, all covered with brown hairs; *Lycaste Skinneri*, many flowers; *Odontoglossum pulchellum* freely bloomed; *Eriopsis bicolor*, many spikes of brownish flowers, with the margins and the lips richly spotted with crimson; *Dendrobium speciosum*, the best variety; *Dendrobium nobile*, several large plants full of flowers; *Dendrobium chrysotoxum*, a free-flowering variety of this species, with the whole flower of a primrose yellow. I noted an extraordinary *Dendrobium densiflorum*, which was showing upwards of a hundred spikes of flowers; when it is in bloom it must be a truly magnificent object.

The Fern-house is well stored with very rare species. The finest plants in Europe are here of *Gleichenia habelata* and *G. dichotoma*. They are grown in pans eighteen inches wide, and are each a dense mass of fronds overhanging the pots: such plants could not be purchased for fifty guineas each. There are also good plants of *Gleichenia speluncæ*, *Cibotium glaucescens*, *Balanium culcitum*, *Cyathea medullaris*, *Dictyoglossum crinitum*, *Phegopteris lachnopus*, *Davallia tenuifolia*, *Pteris scabriuscula*, *Spollortenia umbrosa*, and many others more common in ordinary collections.

I had almost to force myself away from these two most interesting houses, and enter the stove. This is the end house of the range on the upper left-hand platform of the valley; it is 40 feet long and 18 feet wide. There I saw, for the first time, the *Maranta Warszewiczii* in flower. The bracts are curled curiously at the edges, and spotted. The flowers are rather large, and white, rising up conspicuously above the fine foliage.

The most interesting plants in this house are the *Anæctochilus* tribe. Mr. Sidley grows them successfully in a sloping wooden box in pots. The box stands upon a warm flue, and is covered with long plates of thick glass fitting close to each other. When the moisture condenses on these plates of glass they are easily turned over, so that no drops fall upon the foliage. This is the best habitation for these beautiful foliaged plants that I have yet seen used. The plants were very healthy, and the collection is a very fine one. Two species were new to me. The first was *Anæctochilus rubro-veno*. This has a central clearly distinct vein, and one on each side of it curving towards the margin and meeting the central vein at the apex. These veins are of a glowing red colour, the rest of the leaf being of a dark olive-green. It is a most beautiful variety even amongst this richly-leaved tribe. The other is named *Anæctochilus Roxburghii*, introduced from Borneo in 1857. It has oval leaves with red netted veins on a dark velvety-green ground, very distinct and beautiful. It is apparently a strong-growing variety like *A. Lowii*, but the veins are broader and more clearly defined. Whoever grows these plants should adopt this excellent mode of cultivation.

The house adjoining this stove, and devoted to the *Azalea* tribe, is 42 feet by 16 feet. It was filled with very fine specimens, all well set with bloom. In it I noticed a very rare variegated plant named *Yucca pilifera*. It is a very stiff-growing species, with a white stripe running down near the margin of each leaf. On the margin itself there are numerous thread-like stripes tipped with brown. It is quite distinct both in habit and character from *Y. filamentosa*.

Then follows the Heath-house, 48 feet by 16 feet, and a very fine house it is. The floors and stages are all flagged with polished stone, kept as clean as a dinner-plate. Here I saw, as might be expected in such a sweet pure atmosphere, Heaths as green as Leeks, and formed into handsome specimens. They must be very handsome when in bloom.

Next to the Heath-house is the finest house of them all: it is called the winter garden, though it will be handsome all the year round. It is 100 feet long and 20 feet wide, with a double span-roof. A broad flagged path runs round a central bed, on which I saw large specimens of Heaths, *Boronias*, *Polygalas*, *Eriostemons*, &c. On a border near the front glass were placed plants in flower; such as *Camellias*, forced *Azaleas*, tree *Carnations*, *Hya-cinths*, *Cyclamens*, *Epacris*, &c. This is a noble house, and particularly enjoyable, especially in inclement weather. This finished the tour of the houses, and I was very much gratified by the inspection.

One or two points I noted in the pleasure-grounds that I must mention. The sides of the walks are formed with earthen tiles, and the turf just covers the top of them. This prevents any couch grass or other bad weeds running into the gravel, and the grass is more easily kept in order. It gives, also, an air of neatness and finish to the walks very commendable. On the sides of the carriage-road there is a long line of *Rhododendrons*, which thrive here in the common soil: no other evergreen thrives so well in this part of the country, hence it has been facetiously called the *Manchester Laurel*. I saw them last summer when in full flower, and a most splendid appearance they made. The flowers were set off by a background of evergreen *Hollies*. I was glad to observe that my good friend the elder Mr. Sidley was cutting down the deciduous forest trees near these fine evergreens: that measure will keep them in bushy form and good health. Nothing can be more absurd than the common practice of mixing *Elnis*, *Limes*, *Oaks*, and *Beeches* with choice evergreen shrubs. With this protest against such a practice I conclude my remarks on this interesting and beautiful place, assuring our readers that it is well worthy of a visit.

T. APPLEBY.

ÆTHIONEMA CORIDIFOLIUM—ARENARIA MONTANA—ALYSSUM SAXATILE.

I SEND you herewith a branch of the pretty Syrian Crueifer, *Æthionema coridifolium*, which is now quite gay with its numerous corymbs of small rosy-purple flowers. I fancy it is but little known, though few of the spring-flowering rock plants are more deserving of cultivation. It is quite hardy in ordinary winters on rockwork, or in a border of sandy loam, where I grow it; but very sharp winters will sometimes destroy it, if weakly. I add a specimen of the *Arenaria montana*, a commoner plant than the *Æthionema*, but by no means generally met with. In light soils, which best suit it, it is now a mass of bloom; and as the flowers are each three quarters of an inch across, a strong tuft produces a good effect. *Arenaria lancifolia* has rather smaller blossoms, but keeps longer in bloom. Both have pure white flowers.

Whilst on the subject of spring plants, permit me to refer to the well-known *Alyssum saxatile*, which has, I think, received special notice from Mr. Beaton within a short period. The real *saxatile* is truly worth all the praise bestowed upon it; but are your readers aware that the *A. argenteum*, a very inferior species—in fact, a wretched weed, is generally sold for it? I say generally, for I learn from the best authority that the grower who has supplied me with the seed in question has also supplied many London firms for twenty years past, and does not remember having once received a complaint. He adds that two neighbouring seed-growers have vended the same species as himself, so that it is evident the article must have been pretty widely disseminated. It is a curious circumstance that the public should have submitted so long to this substitution, as the true species is common enough. Though compelled to cry *peccavi*, I claim to have amply atoned for my share in this unintentional error by thus publicly drawing attention to the matter. Those of your readers who have ever received the spurious seed of me, may have a packet of the genuine on application.—W. THOMPSON, Ipswich.

GARDEN WALKS.

THERE is nothing which makes a garden more truly enjoyable in all weathers than a good sound walk, perfectly firm and smooth in surface. Whether the premises are small or extensive, it is equally important that there should be a walk embracing all the most interesting objects. Its width should bear a relative proportion to the size and extent of the place; not being less than five feet for the smaller, nor exceeding eight or ten for larger ones.

It should be conducted in graceful and flowing curves to the various points of interest, taking what appears to be the common-sense principle of going directly from one object to another, unless artificial impediments are introduced, which the artist who is *au fait* will know how to create. Here, the walk emerging from the tangled thicket of trees, will ascend a hill, and from its top will command an extensive view over another property, which it most happily appropriates; thus giving an appearance of unlimited extent, and then losing itself again in deep seclusion—passing through breadth of light and breadth of shade without those omnipotent fritters of lights which produce but monotony.

Good gravel is a great boon; but it is, unfortunately, a scarce and most expensive article—in many places scarcely procurable without the expense of long carriage. In such a case broken bricks or stones may be advantageously used for a foundation, superimposing an inch or two of the coarse screenings of the gravel, and finishing it off with from two to three inches of fine material. This is, I think, the most economical plan of making walks; because, when they want freshening, there is no occasion for breaking up the foundation (which should never be done), simply grazing the surface with a rake, and scattering over it a sprinkling of fine fresh gravel, and rolling it well down again are all that is needed. Gravels vary much in quality. Some are very adhesive, and become sticky in frosty weather, hanging to the shoes, and being very disagreeable; while others are not adhesive enough to bind well, from being too sandy. These are very loose and unpleasant to walk upon, reminding us of the unhappy pilgrim who did not “take the liberty to boil his Peas” before starting for “Loretto’s shrine.” Care should therefore be exercised in selecting the gravel, or the two qualities may be combined in happy admixture.

As in forming roads it is too customary to dig out a trench and fill it with large stones—thus forming a receptacle for the water—

in preference to making the road upon the surface; so in walk-making we should forego the trench, merely skimming off the turf to a common thickness and raising the edges to a height necessary for containing the materials of which the road or walk is to be made. Having formed the walk, the side turf should be taken up, and the ground made sloping from its sides, and then relaid.

In proceeding to form a good walk, we would first build up our sides on the surface from four to five inches high. We would then make a slight concavity in the bottom, and in the hollow put a drain: thus the water must all pass directly to the drain. Over this we would deposit three inches of broken stones or brickbats; upon which two or three inches of coarse gravel should be placed, and then one inch and a half of finer gravel. This, when well consolidated by rolling, will be found to have formed a substantial and solid walk.

Thunder-storms are most destructive to good walks where steep declivities occur. To obviate this difficulty, gratings should be put in at a few yards apart; putting them more frequently in a ratio proportionate to the increased steepness. Under each grating should be placed a small cesspool, which should run over at a certain height into the drain, leaving the residuum of muddy water in the cesspool, which must be emptied as required.

As far as our own experience has gone, we feel that we cannot too strongly reprobate the practice of what is called turning walks; our theory being, that, having once laid a good foundation, it should never be disturbed again: in fact, with walks made as we recommend, the picking-up system cannot well be adopted without making a chaos of materials. Added to this, it deranges our whole theory; which is that the ground itself should carry the walk, all the materials of which are kept dry by the smooth even coat of compact gravel on the surface. Our lower material being multangular in form (broken stones), is never likely to rise up in judgment against us to the surface as round pebbles do, which are constantly being pressed on their sides and moving their position.

A great beauty in our walks arises from the nice definition of their outlines: it gives them the expression which it is desirable they should have as works of artistic skill. How incomparably more beautiful is yonder walk, with its shallow edges, brim full of bright warm gravel, as compared with the ragged field foot-path.

Let us remember, then, that in forming walks it is marvellous to see the effects which attention to little matters produces. Let us give these small things our attention; so shall we succeed in our efforts, and be happy if at last we be found in the right path.—HENRY BAILEY, Nuneham.

THE SCIENCE OF GARDENING.

(Continued from page 150.)

FROM the preceding notes upon the constituents and properties of soils, it will be obvious that to be able readily to ascertain those constituents and properties in a soil must often be singularly useful to its cultivator. The requisite experiments are easily tried; and it is a very erroneous impression that, for such researches, an expensive and well-furnished laboratory is needed.

The late Dr. Henry, of Manchester, whose experiments were so numerous and so varied, so intricate yet so accurate, “was at no period of his life in possession of a well-furnished laboratory, or of nice and delicate instruments of analysis or research;” but his ingenuity “was especially displayed in the neatness and success with which he adapted to the purposes of experiment the simple implements that chance threw in his way.”—(*Quarterly Journal of Science, &c.*, vol. viii. p. 17.) If to make experiments in nearly the whole range of chemistry required no paraphernalia of apparatus, much less does it require such for the analysis of soils, to which we shall in this place confine our directions for the attention of the horticulturist; not that such alone is desirable to be pursued by him, but because, in the present state of chemical knowledge among the cultivators of the soil generally, it is absurd to expect that he would pursue some of its most intricate researches. There is no field of science in which lie hid at present more brilliant objects for examination, none that will redound more to the fame of their discoverer, none that will be more generally beneficial to mankind, than that which embraces agricultural and horticultural chemistry. It is yet in its infancy; but the day will come when every cultivator will prepare his soil for each crop in a more scientific way than at present manifested in one unvarying course of culture. The day

will come when manures will be distributed in greater variety and with more discrimination than stable manure and chalk are at present by the load; and when science, confirming him in the judicious application of manures, and the necessity of a clean course of cultivation, will, at the same time, demonstrate that even dungs and composts may be selected and compounded with beneficial discrimination; and that economy is not misplaced in regulating abundance.

The following sketch represents the apparatus we have found the best for ascertaining the retentive and absorbent power of



soils. *a* Represents a small lamp; *b*, a tripod for supporting a small tin vessel *c*, which has a small hole and plug at *g*, for the purpose of filling it with water; and a small pipe *d* for the escape of the steam when the water is brought to a boiling temperature; *h* is a small pair of grain scales. To ascertain the moisture-retentive power of a soil, put ten grains of it, previously dried by exposure to a temperature of 212° (the boiling point of water) for half an hour, by having it laid upon *c*, whilst the water within it is kept boiling for that period. On the ten grains of previously dried soil put, by means of a small quill, three drops of clean water; ascertain the exact weight of these, usually four grains; then suspend the beam, so that the pan of the scales containing the soil may rest upon *c*, as represented in the sketch, the weight of the water having previously been removed from the other scale-pan, *f*. The water in *c* must be kept boiling, and the exact number of minutes noted that is required to evaporate the added moisture, so as to return the beam into equilibrium.

Two hundred grains are as eligible a quantity of any soil to analyse as can be selected. Previously to analysis a proportion should have been kept, slightly covered, in the dry atmosphere of a room for several days, to allow it to part with all the moisture that can be obtained from it by mere atmospheric exposure. Two hundred grains of the soil thus dried should then be placed on a small plate, and held, by means of a pair of pincers, over the flame of a candle or lamp, with a small shaving of deal upon it, until this shaving begins to scorch. The process is then to cease, and the loss of weight, sustained by the soil being thus dried, ascertained. We will suppose that it amounts to thirty grains and a half. The residue must then be gently triturated in a mortar, which, properly, should be of agate, and sifted through a piece of fine muslin; what remains in the muslin will consist of stones and vegetable fibres; the weight of these must be ascertained, and this we will suppose amounts to fifteen grains and a half and five grains respectively. The stones must be examined by dropping some sulphuric acid (oil of vitriol) upon them: if they effervesce, they contain chalk; if not, they are siliceous, and will be sufficiently hard to scratch glass, and will feel gritty; or they are clay stones, will feel soft, and be with little difficulty cut with a knife. That part which passed through the muslin must now be boiled in a small tencup full of clean water for about five minutes; being allowed to cool, and a piece of clean blotting-paper, previously dried before the fire and its

weight ascertained, employed to strain the liquor through, care must be taken to get every particle of the soil into the strainer from the vessel in which it was boiled by repeated washings with clean water. When the liquor is all strained away, place the blotting-paper on a plate over the candle, with a shaving of deal on the plate, and dry it until the shaving begins to scorch. When perfectly dry, weigh the whole; and then, the weight of the paper being subtracted, the weight of the residue, and, consequently, the quantity of matter dissolved by the water, will be afforded; this, which consists of salts and vegetable extract, we will suppose, amounts to four grains and a half. The watery solution must be carefully set on one side, and the analysis of the solid parts proceeded with. Half an ounce, by measure, of muriatic acid (spirit of salt) must be poured upon this in a saucer, and allowed to remain for full an hour, being occasionally stirred with a piece of glass or porcelain; this must now be strained by means of a piece of blotting-paper as before, the matter left upon it being frequently washed with clean water, and the washings allowed to pass through the paper to mingle with the other acid liquor; the matter left upon the paper being perfectly dried and weighed, and the loss ascertained—we will suppose this to be twenty grains. Into the liquor must be dropped, gradually, a solution of prussiate of iron. The blue precipitate which this will occasion being collected by filtering through paper, and washed as before, heated red-hot by means of an iron spoon in the fire, and then weighed—we will suppose it to weigh two grains and a half; this is oxide of iron. This deducted from the twenty previously ascertained to be in the solution, leaves seventeen grains and a half, which may be considered as carbonate of lime (chalk), though probably with the admixture of a little carbonate of magnesia. The solid matter must now be heated to redness in a spoon, until, upon cooling, it does not appear at all black; this must then be weighed, and the loss noted; that loss consisted of animal and vegetable matters—we will suppose it amounted to seven grains. The remainder must be boiled for about two hours with two drachms, by measure, of sulphuric acid, mixed with eight drachms of water, and, when cooled, strained through blotting-paper as before, and washed; when dried at a red heat in the iron spoon, the loss sustained will be alumina (clay); what remains will be silica (flint). We will suppose the first to weigh fifteen grains, and the latter a hundred and two grains and a half.

The analysis will then stand thus:—

Water	30.5
Stones and coarse sand	15.5
Vegetable fibres	5.0
Saline matters	4.5
Oxide of iron	2.5
Carbonate of lime	17.5
Decomposing matter, destructible by heat	7.0
Alumina	15.0
Silica	102.5

200.0

The first watery lixiviation, employed to obtain the saline matter, may now be evaporated to dryness; if of a brown colour, it is chiefly vegetable extract; if of a whitish colour, it is principally saline, and probably consists of chloride of sodium (common salt), with the admixture of a little sulphate of lime (gypsum).

The above mode of analysis we have made as simple as possible, and it requires no other apparatus than a set of grain scales and weights, a little sulphuric and muriatic acids, and some prussiate of potash—the whole of which, sufficient for examining every soil upon a large estate, may be obtained for 30s.

In the above are no processes requiring adroitness in the manipulation, extreme nicety in the operation, or the practised eye of science and experience to conduct. All is simple, requiring nothing but the employment of the ordinary carefulness, and the common sense, of the experimenter.

The portion of soil which it is proposed to analyse should be taken at about three inches from the surface. Neither should the surface soil only be examined, but the substratum also. For it often will occur that the subsoil is of a better staple than that which reposes on it; or is of a quality that is capable of correcting some deficiency in it. Thus a light siliceous soil will often lie upon a stratum abounding in alumina, which, by digging or trenching, may be brought to the surface and mingled with it.

The foregoing plan of analysis, it must be observed, is not one so particular as a practised chemist would pursue; but it is one easy and capable of affording all the facts usually required to be

known by a cultivator—viz., the moisture-retaining power of a soil; the quantity of soluble and decomposable matter it contains; and the proportions of its earthy constituents.

It has been urged by some that a great deal of information may be compendiously obtained by ascertaining the specific gravity of a soil; but of this we could never feel conviction. That a peat soil—that is, one containing a great excess of vegetable matter—is much lighter in weight than such as contain more of earthy constituents is certain; but such do not require their specific gravity to be taken to detect them. If a soil is but rather above or under the average specific gravity, we do not see how the knowledge of that can determine whether the excess of weight arises from silica or carbonate of lime; or the deficiency of weight from vegetable matters, alumina, or other light constituent. The specific gravity of silica is 2.66; of carbonate of lime, 2.7; of alumina only 2.—J.

(To be continued.)

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 152.)

PEACHES.

ACTON SCOT.—Fruit small, narrow, and depressed at the top. Skin pale yellowish-white, marbled with bright red next the sun. Suture well marked. Flesh pale throughout, melting, rich, and sugary. Flowers large. Glands round. End of August. A delicious little peach.

Admirable. See *Early Admirable*.

Alberge Jaune. See *Rosanna*.

AMERICAN NEWINGTON (*Early Newington Freestone*).—Fruit large, round, and marked with a suture, which is higher on one side. Skin yellowish-white, dotted with red in the shade, and bright red next the sun. Flesh white, red at the stone, to which some strings adhere; juicy, rich, and vinous. Glands round. Flowers small. Ripe in the end of August.

Annc. See *Early Anne*.

Avant. See *Grosse Mignonne*.

Avant Blanche. See *White Nutmeg*.

Avant Pêche de Troyes. See *Red Nutmeg*.

Avant Rouge. See *Red Nutmeg*.

BARRINGTON (*Buckingham Mignonne; Colonel Ansley's*).—Fruit large, roundish-ovate. Skin downy, yellowish-green, marbled with red next the sun. Suture well defined. Flesh yellowish, slightly tinged with red at the stone, rich, vinous, and of first-rate quality. Flowers large. Glands round. Middle of September.

The tree is very hardy, vigorous, and a good bearer. This is one of the best mid-season peaches, and bears carriage well.

BELLE BEAUCE.—This is a variety of *Grosse Mignonne*, but considerably larger, and ripens from ten to fourteen days later. Glands round. Flowers large. Ripens in the middle of September.

BELLE CHEVREUSE (*Early Chevreuse*).—Fruit elongated, with rarely a nipple on the summit. Skin unusually downy, yellowish, except next the sun, where it is flesh-coloured and marbled with dark red. Suture distinct. Flesh whitish-yellow, tinged with red under the skin next the sun, and marbled with rose colour at the stone, sweet, and juicy. Flowers small. Glands kidney-shaped. Beginning of September.

BELLE DE LA CROIX.—This is a new peach raised at Bordeaux eight or ten years ago, and introduced to this country by Mr. Rivers. It is large and round. The flesh is very sweet and richly flavoured, equal to the *Early York*. Glands kidney-shaped. Flowers small. Ripens in the end of August and beginning of September. The tree is hardy and a robust grower.

BELLE DE DOUÉ (*Belle de Douai*).—This is a fine, large,

melting peach, an early variety of *Bellegarde*. It is of first-rate quality, with a vinous and richly-flavoured stone. Glands round. Flowers small. Ripens in the last week of August and beginning of September.

Belle de Paris. See *Malta*.

BELLEGARDE (*Galande; French Galande; Noire de Montreuil; Ronalds' Brentford Mignonne*).—Fruit round, slightly compressed and hollow at the summit, with a small projecting nipple. Skin deep red all over, striated with dark purple, so much so as to be almost black. Suture shallow. Flesh pale yellow, slightly red at the stone, rich, vinous, and juicy; healthy and a prolific bearer. Flowers small. Glands round. Beginning and middle of September.

This is a very excellent peach, and the tree is a good bearer.

BOUDIN (*La Royale; Narbonne*).—Fruit large, nearly round, sometimes terminated by a very slight nipple. Skin greenish-white, reddish next the sun, covered with very fine down. Suture deep. Flesh whitish-yellow, deep red round the stone, very rich, sugary, and vinous. Stone small and turgid. Is produced from seed. Flowers small. Glands round. Beginning of September.

Brentford Mignonne. See *Bellegarde*.

Brown Nutmeg. See *Red Nutmeg*.

Buckingham Mignonne. See *Barrington*.

De Burai. See *Yellow Admirable*.

CATHERINE.—Fruit large, roundish, elongated, swollen on one side of the suture, and terminated by a small nipple. Skin yellowish-green, dotted with bright red in the shade, bright red striated with darker red next the sun. Flesh adhering to the stone, firm, yellowish-white, dark red at the stone, juicy, rich, and excellent. Requires heat to bring it to full perfection. Flowers small. Glands kidney-shaped. September and October.

CHANCELLOR (*Edgar's Late Melting; Late Chancellor; Noisette; Steward's Late Galande*).—Fruit large, oval, pale yellow, dark crimson next the sun. Suture well defined. Flesh free, pale yellow, very deep red at the stone, sugary, rich, and vinous. Stone oblong. Flowers small. Glands kidney-shaped. Middle of September.

China Peach. See *Flat Peach of China*.

Colonel Ansley's. See *Barrington*.

COOLEGE'S FAVOURITE.—Fruit medium sized, roundish, with a well-defined suture, which is most marked towards the apex, and rather higher on one side than the other. Skin white, covered with crimson dots, and with a crimson cheek on the side next the sun. Flesh very tender and melting, separating freely from the stone, juicy and sweet, and with a fine delicate flavour. Glands round. Flowers small. This is a very fine peach. Ripens in the last week in August.

CRAWFORD'S EARLY (*Crawford's Early Malecoton*).—Fruit very large, of a roundish and slightly oblate shape, depressed at the crown, from which issues a rather shallow suture, much higher on one side than the other. Skin thin, of a deep lemon colour, but on the side next the sun it has a reddish-orange blush, strewn with numerous, distinct, dark crimson dots. Flesh yellow, reddish at the stone, from which it separates freely; very tender and melting, remarkably succulent, with a delicious saccharine and vinous juice. Glands round. Flowers small. End of August and beginning of September.

This is a very large and most delicious peach, with a yellow flesh like an apricot, and is deserving of very extensive cultivation.

DESSE TARDIVE.—Fruit large, round, flat at the top, and marked with a deep suture at the stalk. Skin of a very pale colour, covered on the shaded side with minute red dots, and a light tinge of red next the sun. Flesh pale greenish-white, with a faint rosy tinge next the stone, melting, very juicy, sweet, richly flavoured, and

vinous. Glands round. Flowers small. Ripe in the end of September and beginning of October.

This is one of the very best late peaches. There is a *Desse Hâtive* quite distinct from this, which ripens in the middle of August, having kidney-shaped glands and large flowers.

Dorsetshire. See *Nivette*.

Double Montagne. See *Montaubon*.

Double Swalsh. See *Royal George*.

Dubbele Zwolsche. See *Royal George*.

EARLY ADMIRABLE (*Admirable*).—Fruit large, roundish. Skin fine clear light yellow in the shade, and bright red next the sun. Suture distinct. Flesh white, pale red at the stone, rich, sweet, and sugary. Flowers large. Glands round. Beginning of September.

EARLY ANNE (*Anne*).—Fruit medium sized, round. Skin white, tinged and dotted with red next the sun. Suture shallow. Flesh white to the stone, pleasant, but rather inclined to be mealy, its earliness proving its chief merit. Flowers large. Glands none. Early in August.

Early Chevreuse. See *Belle Chevreuse*.

EARLY GROSSE MIGNONNE (*Mignonne Hâtive*).—Fruit medium sized, roundish, pitted at the apex, with a small nipple on one side of it, and with a shallow suture. The skin has a pale red cheek on the side exposed to the sun, and is thickly dotted all over with bright crimson dots. The flesh is white, with veins of red throughout, separating freely from the stone, sweet, very juicy, and vinous. Glands round. Flowers large.

This is a very fine peach, ripening in the second week in August.

(To be continued.)

NOTES BY A SMALL GARDENER.

I PROMISED, last November (Vol. XXI., p. 86), that I would inform you this spring how my plants (which I cellared) lived during the winter, as follows:—

Geraniums in pots; Fuchsias—*Wistaria sinensis*, *Lophospermum scandens*, *Deutzia gracilis*, and *Ipomœa Learii*.

In the first place, my cellar is very dry, airy, and having a fair amount of light. The plants I sprinkled twice with water, from October to February. At the latter end of February they were removed to my small greenhouse, and, I can assure you, a crowded house it was. The next point is, How did they live in the cellar? Very well. The Geraniums, of course, had a desire to grow; and as they threw up their spindled shoots for want of light I pinched them off. *Lophospermum* I cut down to within three feet. *Ipomœa* the same. This cutting down was done in October, when cellared. These two climbers are growing first-rate; the latter is now up to the roof, and nearly half way across, growing in pots thirteen inches diameter. Some of the small Fuchsias in 60-pots died away, certainly, natural enough. *Wistaria* is now out of doors growing very well, and also *Deutzia gracilis*. The plan is a successful one which no one need be afraid to try.

A word or two about the sand-and-water system. We have heard a good deal concerning this plan. Now I wish to be very plain about this matter. In February I thought I would try a few cuttings of Verbenas in my kitchen, the temperature would, probably, be about 58°. Be it understood these were in a small pot, so that the water could drain through, but kept moist. Did they strike? No. Well, after a while I tried another batch in sand and water, in a saucer, with the same result. Being determined not to be beaten out, I covered my greenhouse flue with sand to the depth of four inches, and placed cuttings in sand and water on, or a little plunged in it. Well, how now? They strike readily enough. So that it clearly proves that unless there is bottom heat it is of no use, except the weather is of summer-heat. No more kitchen cuttings for me, nor mantel-piece neither. Cuttings of Dahlias, three inches long, will strike very soon in sand and water with bottom heat.

A word or two about gravel walks. How is it that we sometimes see rough and unsightly walks, unpleasant to tread upon, and ugly to look at? In consequence of bad management. Last

week I covered my walk with gravel. Last autumn, my garden being new, I first put a thick layer of rough cinders upon the walk as a foundation. I riddled the gravel through a garden riddle, putting all the rough stones upon the cinders; the fine gravel being used for the surface. It so happened that I had no occasion to water the walk, because it rained at the time. I have applied the roller well, and now it seems, in some places where it has thoroughly set, to be almost like stone. Nothing is more unpleasant than to be kicking stones about as you walk in a garden.—S. TATTERSALL.

NOTES FROM PARIS.

THE HORTICULTURAL EXHIBITION.

I THINK I mentioned on a former occasion that all the ground in the nave of the *Palais de l'Industrie* was beautifully laid out, so as to form a permanent garden; but, as it is some time since then, perhaps it may not be out of place if I again notice its general features. The ground may be about a quarter of an acre in extent, and nearly twice as long as it is broad. Almost all the space in the middle is laid out in lawn, which is only divided in one or two places by walks, for the promenade is chiefly at the sides—that is, just close to the columns which support the galleries. A pretty little stream meanders in the middle of the lawn from one end to the other; now turning a clump of rocks studded with Ferns; now falling gently over others like a miniature cascade. At one place you “cross the brook,” by stepping from stone to stone; and, at another, you pass over a neatly constructed rustic bridge, with Ivy growing to its sides. There are a couple of black swans that sail on the stream, or walk on the lawn, with all the *sans gêne* and authority which are so often observed in government protégés. There are two or three good examples of *Araucaria*, *Cedrus*, and *Pinus* growing singly here and there, and these appear to thrive well; but the large trees that were planted some time ago have not succeeded, and will, probably, have to be removed. The whole of the garden is thickly studded with the large and beautiful sculptures which form part of the Great Exhibition of Fine Arts, which chiefly occupies the north gallery.

The Exhibition of the Horticultural Society is principally composed of Roses, Rhododendrons, Azaleas, evergreens, and greenhouse plants; and these occupy the several clumps of ground formed in various places of the garden, and in such a way that they appear as if permanently planted. All the plants and flowers are *in or on* the ground. There are no benches, though there are ornamental stands for Orchids, cut Roses, and bouquets. In the last class the principal exhibitor was M. Bernard, of the Rue Laffitte, who had also a large *carbeille* composed of Roses, Pæonies, Stocks, Fuchsias, and other showy sorts. In the same collection there is a magnificent bouquet of Roses, arranged in a conical form, about twenty inches high, and twelve or fifteen inches across at the base. The Roses are only half expanded, and they are arranged somewhat loosely, so that after fuller expansion they are not too much pressed against one another; while all the spaces between them, at the time of tying, become nicely filled in. Each Rose, with one or two buds, is neatly tied on to what is called here a *Jonc d'Espagne*, which, I think, I noticed on a former occasion in noticing the construction of French bouquets in general. The next in merit to this is smaller, not so high, but of nearly the same form, though more compact. It is made up exclusively of red Pinks, blue Violets, purple Poppies, and Lily of the Valley, and these are arranged so as to form four distinct surfaces or sides, the flowers of each kind being separated from the others in a direct line from the top to the base, and at the summit there is a large flower of a species of Cactus. This sort of bouquet is rare, and it evidently requires considerable skill in its construction, but it is very pretty. M. Bernard has also several very good examples of the circular form of bouquet, besides one or two in which the flowers are arranged without any plan, but distributed naturally and neatly all over.

There is an interesting collection of Orange trees, from three to six feet high, belonging to M. Courtois. These are, for the most part, in fruit, and all are well grown. Those in fruit are *O. Pompoieum*, a robust and free-growing sort. The fruit is about three inches in diameter, and of a dull pale-yellow colour. The leaves are of the usual form, and fully four inches long. The *Mandarin*, a small, flattish variety, is the next in note. It is not rare in the markets of Paris, and it is often used in the making up of bouquets. There is another small variety which

is called the Willow-leaved Orange, from the size and form of its leaves: the fruit is about two inches in diameter. The others are chiefly Bigarades, as—*O. Bigarade cornu*, *O. Bigarade ordinaire*, *O. Bigarade violette*, and a variety of the same with double flowers. None of the Bigarades, however, are in fruit, but only in flower. In the same collection are two or three neat young trees of Citron, all in fruit more or less ripe.

There are several collections of evergreens; but that of M. Poatemer, of Gentilly, contains the greatest number of new or recently introduced species, as—*Wellingtonia gigantea*, *Araucaria Bidwillii*, *Cephalotaxus Fortunei*, fem., *Pinus Aleutica*, *Abies Webbiana*, *A. nordmanniana*, *Cupressus Uhdiana*, *Libocedrus viridis*, and *Thuja aurea nana*. In the collection shown by M. Bougival there is a handsome tree of *Buxus pyramidalis*, seven feet high, and an equally fine example of *Buxus foliis aureis*. There are also good examples of *Abies balsamea*, *A. pectinata*, *Pinus calabrica*, *P. Strobus*, *Taxus Hibernica*, and *Cryptomeria Japonica*, all about ten feet high.

Of Orchids there was but a poor display, only two small collections being shown, in which are small plants of *Calanthe veratrifolia*, *Lælia purpurata*, *Aërides Lindleyanum*, and the like. From all I have seen of Orchids in any of the Exhibitions here, it is clear that the growers about Paris are far behind in the culture of this beautiful tribe of plants. M. Verschaffelt, of Ghent, who, I think, is the only exhibitor from another country, has a large plant of a new Begonia, called *Leopoldii*. The leaves are about fifteen inches broad, and the stalks are densely covered with red hairs. It is, altogether, a gross, free-growing variety, capable of attaining immense proportions. But M. Verschaffelt has sent no statement about it, and it is not in flower. In another collection there is a different variety equally robust, said to be a cross between *Begonia Rex* and *B. splendida*. If these two novelties do not require much heat, the best place for them, eight months in the year, is, evidently, the open ground. There was a case of beautiful new Caladiums, said to have been introduced from the river Amazon in 1858. These belong to M. Chantin; and there are some seven or eight different varieties, all beautifully variegated, most in green and white, but one or two in red and green, like *C. bicolor*. As might be expected, there are some good collections of Roses in pots, both dwarf and standard; but it is impossible to enumerate all the fine varieties, yet I may just mention two that received everybody's admiration. One is *David Prodel*, both single and double, and about five inches across; the other is *Triomphe des Beaux Arts*, a fine deep purple variety. These are in the collection of M. Fontaine, of Chantillon, near Paris.

There are several collections of Pelargoniums; but by far the best are twelve large plants belonging to M. Lierval, of Neuilly. These are from four to five feet through, and about as good as anything I have seen at Chiswick or the Regent's Park. The same exhibitor had a collection of small plants, which were also admirably grown.

Rhododendrons were much more numerous this year than formerly, and it is evident that there is a growing taste for these showy flowers. In general they are planted in raised clumps, as in the American garden of the Regent's Park. The plants of M. Truffaut were the largest and best. His sorts were such as *Gloriosum*, *Lucidum*, *Souvenir de Grand*, *Everestianum*, and others. M. Truffaut had also the best greenhouse Azaleas. They were not large, but beautifully grown and covered with blossoms. There was also a fine bank of the same kind belonging to M. Michel, of Paris. Rhododendrons, open-ground Azaleas, and Kalmias, were also shown by M. Briot, of the Imperial Gardens at Trianon, MM. Jamin and Durand, and one or two others, whose collections in general make a very fine display.

As usual there was an immense number of Palms and other stove plants, not in flower, which fill up and give variety. Then came a long train of stove and greenhouse Ferns, Cacti, Aloes, Gloxinias, herbaceous plants, Begonias, Calceolarias, Pæonies, Fuchsias, and other sorts, scarcely necessary to enumerate.

So much for the flowers and plants, which, on the whole, made an excellent display; but I may observe that there were no collections of what we call stove and greenhouse plants—at least, nothing worthy of mention. There was only one specimen, a magnificent Pelargonium, about five feet through. There were no Allamandas, Ixoras, Stephanotises, Epacrises, Hoyas, or Heaths, which form the large collections at the London Exhibitions. Then there are no collections of large and costly Orchids, such as are seen in England. Indeed, the few

small plants that were shown seemed to be considered as perfect curiosities. If we add that there are no beautiful Heaths, such as are shown by the gardeners and nurserymen of Norwood, Clapham, and Tooting, it is clear that the Paris Exhibition is altogether wanting in three of the most important classes of a Flower Show.—K.

NEW AND RARE PLANTS.

COLUMNÆA SCANDENS (*Climbing Columnnea*).

THIS, merely from a variation in its leaves, has been also called *C. rotundifolia* and *C. speciosa*. Native of the West Indies. Flowers dark flesh-colour. Grows well "in a basket suspended from the roof of a moist stove."—(*Botanical Magazine*, t. 5118.)

GOLDFUSSIA THOMSONI (*Dr. Thomson's Goldfussia*).

Native of the Sikkim-Himalaya, at elevations of from 6000 to 9000 feet. Flowers violet-purple, abundant, and in succession for several weeks.—(*Ibid.*, t. 5119.)

RHODODENDRON SMITHII (*Sir James Smith's Rhododendron*).

Native of the northern slopes of the Lablung Pass, in Bootan. Blooms in March. Flowers red.—(*Ibid.*, t. 5120.)

STANGERIA PARADOXA (*Fern-leaved Stangeria*).

This remarkable plant was sent, in 1835, from Natal by Dr. Stanger. It was thought to be a "Zamia-like Fern;" but Mr. Moore correctly observed that it was more like a Cycad than a Fern. It has recently bloomed, and is now found to be a true Cycad. It has been called *Lomaria coriacea*, and *L. eriopus*.—(*Ibid.*, t. 5121.)

AGAVE MACULOSA (*Spotted-leaved Dwarf Agave*).

Native of Texas. Flowers in September. Not more than two feet high.—(*Ibid.*, t. 5122.)

KIDDLE NETS.

(Continued from page 140.)

THESE kiddle nets, on closer examination, proved to be the ordinary kind used in deep sea fishing, stretched from poles placed a few feet apart and firmly sunk in the sand. These are sufficiently long for their upper end to be rather above the surface of the water at high tide near the shore; while those further out are considerably below it.

Their arrangement is ingenious. The poles, with the nets attached, are placed in a straight line reaching for some distance into the sea—perhaps a hundred yards—when a bend is taken; the figure thus formed somewhat resembling a common fish-hook without the barb: a similar figure, but shorter in the shank, is then made by the continuance of the same straight line and another like bend; and this is repeated as far as the nature of the bottom and the subsidence of the water at low tide will allow. From the place where I was then standing there were extended three of these bends, or "bights" as they are called. The object of this arrangement I understood to be, that, as at certain seasons, the mackerel come in near to the shore when the tide is high, when it recedes and falls they are left within the circular walls of network; and, being gregarious in their habits and the shoals very closely packed, the number so enclosed is frequently very great.

This description I had while standing watching the ebbing tide; the troops of sea-gulls stationed at the water's edge; the rapid flight of birds, somewhat resembling the jack-snipe; and the swallow-like motion and shrill cry of a species of tern, with its black crown and bright red feet visible as it flitted by in fearless enjoyment of its liberty of private fishing. My informant was one whose right and ability to give information there was unquestionable; he being the proprietor of the nets, a friendly man, whose chief characteristic—besides those which he had in common with them who shared the duties of the time and place with him, a sunburnt skin and Sussex tongue—was, that, like the renowned Captain Cuttle, in the place of a hand he had on one arm an iron hook; but long habit had made this artificial member almost as useful as the one it had replaced. From him I learnt much in connection with this and other modes of catching mackerel. That many are taken from boats by the ordinary

method of netting; but that, when the weather is favourable, the water in a right condition, and the shoals—or “scholes” he called them—of mackerel in the neighbourhood, the “kiddle” net plan is a profitable one. But, as he said, it is not *all* profit. There is a great outlay required for the poles and nets, which are necessarily very extensive. There is also a great amount of labour expended in the preparation and sinking of the poles, and stretching the nets from one to another. This labour is greatly increased by the liability of the nets to be broken by the sea in stormy weather, rendering it necessary that they should be taken up when such weather is looked for. After all precautions they are sometimes greatly injured; and even if the weather be calm, and all the other matters satisfactory, there may be very few mackerel which come within the fatal circle; so that, taking the average of seasons, though the most experienced may make the speculation pay, my friend said—and I believe he might be considered a judge—“They don’t make ther fortins.”

While talking I had noticed that my companion kept an eye on the nets, which were becoming every minute more visible; and now he gave the order to one of the men to hoist a flag and basket upon a mast fixed in the sand close by.

He accounted for this manœuvre by telling me that the number of carts from the town to fetch the fish to go by train for the London market was regulated by the prospect of fish in the nets, and that this was the plan he had adopted for making it known. “You see,” he said, “when ther’s a few we hoist a flag; when ther’s a tidy lot we hoist a basket too; and sometimes we hoist another basket, but that’s only when ther’s a terrible sight o’ fish. You come,” he added, “at a pretty good time, comparison speaking. Ther’s something for ye to see in the second bight.”

Thus directed, I brought my glass to bear upon the spot indicated, and could perceive the glittering of fish hanging in the nets; but as there appeared to be no great number, I asked if that was what he meant.

“No,” he said, “they be only a few herrings: they mostly hang in the nets, but if you look at the water praps you’ll see a ripple on it.”

I turned my glass in that direction; and sure enough within the second bend I discerned a commotion on the surface of the water as if it were ruffled by a breeze. That, he told me, was the mackerel.

There was now a general movement towards the nets. I was not the only visitor. Among fish-dealers from the neighbouring town, and the “hands” connected with the fishery, were several amateurs who had evidently paid a visit to the spot before. There was not much to be seen in the first bend, though a few mackerel were taken up and put into baskets brought down from the settlement; but when the receding tide permitted us to enter the next, where the water was now about two feet deep, the scene was novel and exciting to the last degree.

No one seemed to care for the wetting: respectable landmen, with their trousers tucked up above their knees, and even their wives and daughters, with garments bedragged, and hair sadly out of curl, waded into the animated water. For it really was animated. The imprisoned fish dashed against us, and we could hardly walk without encountering them. It was a beautiful sight to see their deep green hue, much of which they soon lose after they are taken from the water. It was a delightful excitement to make desperate and often unavailing plunges after one that sailed by within our reach. It was a moment of triumph when it was effectually grappled with, and held aloft in the hand; of deep disappointment when, with a twist of its strong body, it eluded our grasp and returned to the water. But we tried again, and sometimes succeeded in getting a captive into the basket standing near; always in getting ourselves drenched.

Meanwhile, a more wholesale capture had been going on, the fishermen being provided with hand-nets for the purpose.

The third bend was then entered, where a similar scene was enacted. The tide had now left the whole nearly dry, save here and there a little pool, and the mackerel and herrings, with an occasional specimen of some other edible fish, had been carried up to the beach.

There were still, however, a few things to be looked at. A huge fish of the skate tribe, known as a sting-rate, lying in the agonies of death, with the sting severed from the body; two or three cuttle-fish spouting out their inky fluid; masses of various kinds of sea-weeds, which were being disengaged from the nets to leave them clear; and numbers of the large-mouthed dog-fish, treated unceremoniously by the fishermen and visitors, who had pitched them over the nets out of the way.

On the beach business was proceeding briskly. Baskets were being packed, and carts loaded with the spoil, the majority of which was going by train,—formerly the carts took them at once straight to London,—and the home fish-dealers were bargaining for their supply for retail sale.

The day was drawing to a close. One of the visitors, with that spirit of hospitality which such occasions call forth, offered me a seat in his light cart as far as the corner where the Poppies bloomed, which being accepted, we set off. He told me by the way, that he had seen the nets broken with the weight and strength of the enclosed fish; and, on another occasion, upwards of £40 worth of mackerel brought up to the beach; that there were several sets of nets on the coast besides those I had seen. Finally, he hoped I had “enjoyed myself.” I said I had, thanked him, and bade him “good day.”

Soon after, I found myself at the ferry, which we crossed,—this time making a considerable *détour* to avoid a bank of sand in the middle of the stream,—through the town again, hearing “fresh mackerel” already cried, “seven for a shilling;” and, after a light repast at a comfortable inn, I was once more in the train, and reached my town quarters while the shop lamps were shining. Sand was in my shoes, my clothes had been wet, and had “dried on;” but the first were soon off, and salt water gives no cold: so that my excursion was one of unmixed satisfaction. Henceforth, I shall never look upon mackerel without being carried back in imagination to that pleasant day’s journey, and the “kiddle nets” on the Sussex coast.—G. R. T.

ERRATA.—In “Kiddle Nets,” page 140, column 1, line 37 from top, for “past,” read “but.” Line 20 from bottom, put a comma after “Marsh,” and substitute a small w for the capital in “White.” Same page, column 2, line 7 from top, for “belt” read “bolt.”

SCRAPS FROM NATURAL HISTORY.

A PET HORNET.

THE readers of THE COTTAGE GARDENER have, no doubt, heard of many pet animals; but the history of a pet insect which has such a bad name may amuse some of them.

A few summers since, close to my beehive, I had an empty hive on a stand in the month of May, expecting a swarm. On watching my bees, I observed a large queen hornet come from the empty hive and fly away. After waiting some time the hornet returned; and, from the manner she entered the hive, it looked very much as if she had chosen that place as her domicile. On her leaving the second time I examined the hive, and found a round substance about the size of a walnut formed at the top inside, which soon proved to be the commencement of a nest. The nest was watched some time every day, and it gradually increased in size. The weather became unsettled; and the queen hornet became weak and feeble, and was, during this time, scarcely able to fly.

One night after the clock had struck nine, almost dark, she missed her way into the hive, and fell exhausted amongst some young Potato haulms beneath. She was unable to rise. I raised her on my open hand to the mouth of the hive, which she entered. She was very fidgetty, but did not offer to sting me.

In June the nest was increased to the size of an orange, and four young hornets were hatched: these assisted the mother and worked regularly, but never increased to a greater number. I used to sit for an hour or more nearly every day and watch the hornets at work. They never attempted to molest me nor the bees near them. I have observed that wasps and hornets do not act offensively while in small numbers.

The old queen of the hornets was certainly no friend to the Early-closing Association; as, when by herself, she worked every day until more than half an hour after sunset. When I lived further in the country there was a very strong hornet’s nest in one of my haystacks, within two hundred yards of my apiary; and the hornets never attacked the bees during the whole summer. Hornets are certainly not “so black as they are painted;” but I have no doubt, should an unfortunate horse or other quadruped disturb their nest when they become very strong as to numbers, they are very formidable enemies.

To finish the story of my pet hornet. In the month of September of the same year the old queen became unable to fly or leave the nest; and she and the young ones, with part of the nest, were sent to the Entomological Society’s rooms for examination.—H. W. NEWMAN, *Cheltenham*.

VARIETIES.

JAPANESE PAPER.—It was wonderful to see the thousand useful as well as ornamental purposes to which paper was applicable in the hands of these industrious and tasteful people: our papier-maché manufacturers, as well as the Continental ones, should go to Yedo to learn what can be done with paper. We saw it made into material so closely resembling russian and morocco leather and pig-skin, that it was very difficult to detect the difference. With the aid of lacker-varnish and skilful painting, paper made excellent trunks, tobacco-bags, cigar-cases, saddles, telescope-cases, the frames of microscopes; and we even saw and used excellent waterproof coats made of simple paper, which *did* keep out the rain, and were as supple as the best Macintosh. The Japanese use neither silk nor cotton handkerchiefs, towels, or dusters: paper in their hands serves as an excellent substitute. It is soft, thin, tough, of a pale yellow colour, very plentiful and very cheap. The inner walls of many a Japanese apartment are formed of paper, being nothing more than painted screens. Their windows are covered with a fine translucent description of the same material; it enters largely into the manufacture of nearly everything in a Japanese household; and we saw what seemed balls of twine, which were nothing but long shreds of tough paper rolled up. If a shopkeeper had a parcel to tie up, he would take a strip of paper, roll it quickly between his hands, and use it for the purpose; and it was quite as strong as the ordinary string used at home. In short, without paper all Japan would come to a dead-lock; and indeed, lest by the arbitrary exercise of his authority a tyrannical husband should stop his wife's paper, the sage Japanese mothers-in-law invariably stipulate, in the marriage settlement, that the bride is to have allowed her a certain quantity of paper! On the 25th August Lord Elgin invited all the Commissioners to dinner, and they came an hour before time, bringing a Japanese conjuror to enable his Excellency to judge of their skill in tricks of legerdemain. An impromptu theatre was soon formed of an apartment, one side of which opened out upon the temple garden; chairs and benches were ranged on the well-kept lawn, and the Ambassador, Commissioners, the suite, and a large body of officers, formed the audience. The conjuror was a gentlemanly-looking venerable man, clad in ample silk robes. He had as an assistant a wretch who tapped incessantly upon a small drum; and by his remarks, unintelligible of course to ourselves, he served to amuse the Japanese who crowded behind us. The old man performed many tricks of legerdemain in a manner that equalled anything we had ever before seen; but when he proceeded to show the far-famed butterfly trick all were fairly wonder-stricken. Our Japanese Merlin was seated cross-legged about ten yards from us upon the raised platform of the floor of the apartment; behind him was a gold-coloured screen, with a painting of the peak of Fusi-hama in blue and white upon its glittering ground. He threw up the sleeves of his dress, and showed a piece of some tissue paper which he held in his hand. It was about six inches square; and by dexterous and delicate manipulation he formed it into a very good imitation of a butterfly, the wings being extended, and at the most each was one inch across. Holding the butterfly out in the palm of his hand to show what it was, he placed two caudles, which were beside him, in such a position as to allow him to wave a fan rapidly without affecting the flame, and then, by a gentle motion of this fan over the paper insect, he proceeded to set it in motion. A counter-draught of air from some quarter interfered with his efforts, and made the butterfly truant to his will, and the screen had to be moved a little to remedy this. He then threw the paper butterfly up in the air, and gradually it seemed to acquire life from the action of his fan—now wheeling and dipping towards it, now tripping along its edge, then hovering over it, as we may see a butterfly do over a flower on a fine summer's day; then in wontonness wheeling away, and again returning to alight, the wings quivering with nervous restlessness! One could have sworn it was a live creature. Now it flew off to the light, and then the conjuror recalled it, and presently supplied a mate in the shape of another butterfly; and together they rose, and played about the old man's fan, varying their attentions between flirting with one another, and fluttering along the edge of the fan. We repeatedly saw one on each side of it as he held it nearly vertically, and gave the fan a short quick motion; then one butterfly would pass over to the other, both would wheel away as if in play, and again return. A plant with some flowers stood in a pot near at hand; by gentle movements of the fan the pretty little creatures were led up to it, and then their delight! how they played about the leaves, sipped the flowers, kissed each other, and whisked off again with all the

airs and graces of real butterflies! The audience was in ecstasies, and young and old clapped their hands with delight. The exhibition ended, when the old man advanced to the front of his stage, within arm's length of us all, accompanied by his magic butterflies, that even in the open air continued to play round the magician and his fan! As a feat of legerdemain, it was by far the most beautiful trick we had ever heard of, and one that must require an immense amount of practice.—(*Cruise in Japanese Waters.*)

VENEER GRAFTING ON THE OLD BARK.—The bark of a tree is composed of three distinct layers; first, the outer bark or epidermis, which in old trees becomes very rough. Second, an intermediate layer, which is more or less green, and which shows when the outer bark is scraped or shaved with a knife; and third, an internal layer, called the *liber*. It is white and of a fibrous nature. Grafting by a scion on the *green* part of the bark, from which the epidermis has been previously removed by a knife, is a process of easy demonstration; M. Oberdieck, one of the most skilful pomologists of Germany, having succeeded perfectly in uniting branches of all sorts of fruit trees on the bark simply stripped of its epidermis. Any one who doubts the possibility of the thing, has but to observe in nature that two branches which touch, and which remain in that position for a long time, will become perfectly united. This mode of grafting is very advantageous in regrafting old trees.—(*L'Horticulteur Praticien.*)

TO CORRESPONDENTS.

VARIEGATED GERANIUMS IN LONDON (*An Old Subscriber*).—We fear that want of pure air and a sooty atmosphere are the chief reasons of failure. We do not think there is anything chemical or otherwise in the water in the nursery. More than twenty years ago we found some difficulty with variegated plants in London, but little with variegated-leaved plants requiring a tropical temperature. These, from being kept closer and with less air, had less exposure to the sooty atmosphere. Since then we have had little practice as to London growing, and would invite some of our metropolitan subscribers to give a more detailed answer to "An Old Subscriber."

MULBERRIES FALLING YOUNG (*H. P. D.*).—As the tree produced a few fruit some years ago, we see no reason why it should not do so again. Most likely it is extra luxuriant from the roots getting down into the clay. Root pruning would do it good, more especially as it has actually fruited. Female and male flowers are produced separately, just as in the case of the Cucumber. The former in small, ovate, erect spikes; the latter in a drooping axillary spike. Generally both flowers are produced on the same tree; but sometimes the flowers are nearly all males, and, in other cases, nearly all females. The check by root pruning will encourage the pistil or fruit-producing flowers, more especially as they have previously appeared and arrived at maturity.

STRUCTURES FOR KEEPING A GARDEN GAY (*A Manchester Subscriber*).—We do not think the gardener has sufficient means to keep the conservatory always gay, though by successions there might always be something in bloom; but not a great blaze all over. The best place for the erection would be beside the frames against the eight-foot wall. The cheapest would be a lean-to house,—say thirty feet long, and ten feet wide,—the height of the wall at back, and five feet in front; part of that to be glass. A path down the middle, and a platform on each side, heated separately, or by a pipe from the boiler already existing. This house might be sunk eighteen inches below the level if desired; but the chief advantage would be less exposure to winds. Instead of a lean-to, the roof might be spanned, and then there would be morning sun obtained—a matter of importance in a house facing the west. The south end should be glass. If the frames could be moved easily, the house had better stand near the entrance to the shed where the frames now are. The shed itself, if wide enough, and roofed with glass, being behind the conservatory and forcing-house, would make a useful place. If the south side of the conservatory is of any height, say three or four feet in brick-work, a pit facing the south might be sunk against it; but then it would be apt to rival the conservatory, and be more in the way. A span-roofed low house where the frames stand would be best.

NURSERYMEN (*A Novice*).—Whether dwelling near, or at a distance, we have always found, that if we deal with well-known firms they treat us liberally. We have made satisfactory purchases of the very firm you name.

PEACH LEAVES BLISTERED (*C. R. S.*).—The cause of this distortion is undetected. Frosty nights, followed by hot sunny days, have the blame at present.

YOUNG LAUREL LEAVES (*A Subscriber*).—The brown patches are occasioned, probably, by the violent transitions of temperature during last month. A sweet exudation is always found on the young stalks of Laurel leaves growing vigorously during hot weather at this season; and we have no doubt that the bees obtain from it honey.

LUCERN (*B. W. E.*).—This must be sown early in April, upon well-cleaned ground. Sow in drills a foot apart, to allow the hoe keeping it clean. We should sow the whole thirty rods with Lucern. Keep it well supplied with liquid manure, and you may cut it four or five times annually. A dressing with chalk or limy rubbish will be advantageous.

UCOMIS PUNCTATA (*G. F. Jesse*).—Your plant, as near as we can make out, is a bulbous-looking plant, called *Ucomis punctata*, but not a true bulb. If it is this *Ucomis*, it has large, handsome, spreading leaves, with their stalks much spotted and tinged with purple. It requires the same treatment, soil, and everything, all the year round, as any one of the good new kinds of Fuchsias, and nothing more nor less. Gardeners grow Fuchsias in pots far better than they would grow in the open border. But, in an

ordinary way, Fuchsias do far better planted out in a good border than in pots, and it is just the same with your *Ucomis*. Therefore, the best thing you can do is to select a snug warm place for it, out in the open air, near to a south wall, or on a west aspect under a wall. To plant it there at once, to plant it as deep as it is now in the pots, or if not in a pot, to see the top of the bundle of roots is just three inches below the surface. Give it water as often, for the first month, as if it were in a pot; after that, it will do for itself, and the same sized heap of coal ashes which would save the roots of a cut-down Fuchsia from the frost, will do to save the roots of *Ucomis*, but the leaves will go just like the tops of Fuchsias. *Ucomis* is a beautiful old-fashioned plant, and worth all the pains these simple means require. It blooms in summer just like a bulb, and not unlike the way of those Tritomas they talk so much about.

EARWIGS (*M. O. P.*).—The following, chiefly extracted from Köllar, is the best information we can give you:—"THE EARWIG (*Forficula auricularia*).—This well-known insect, considered, without cause, as very dangerous to mankind, must find a place among those chiefly injurious to fruit and flowers. Its size varies according to its age and sex. When fully grown it measures eight or ten lines, including the forcep-like appendage at the end of the abdomen; its breadth is two lines. The body is light-brown, free from hair; it has very short wing-cases, under which the wings lie concealed, folded both longitudinally and transversely. Its usual habitats are under the bark of trees, in the hollow stems of trees, in rolled up leaves, and under stones. The female sits upon her eggs like a hen, and broods her young. The only certain method of destroying earwigs is by catching them; which is best effected by hollow tubes, laid here and there in orchards and flower-beds. The common reed is fit for this purpose; but the hollow stem of the Sunflower is even more so, as the insects are eager in the pursuit of the remains of the sweet pith. They are also easily caught between the folds of paper, or in pieces of cloth and linen laid on the ground. They creep into these traps in the morning after their nocturnal rambles, and may easily be shaken out and killed at any time of the day. Some amateurs of Pinks and Carnations place the feet of their flower-stands in vessels of water, which prevents the earwigs from creeping, but not from flying, upon the plants, for the earwig has wings."

MILDEWED VINE LEAVES (*C. R. R., Lymington*).—Your Vine leaves are mildewed; treat them with flowers of sulphur, as recommended in our last number.

ANTS (*H. M. G.*).—Hellebore has no effect upon them. In powder, white hellebore dusted over caterpillars kills them.

GREEN CENTRE IN ROSES (*H. E. M.*).—You will have seen what we said last week.

SPOTS ON LAUREL LEAVES (*A Subscriber*).—Those near the base of the stalk are certainly glands. The opening is natural, and not caused by insects.

FUNGUS ON FLOWER-POTS (*C. R. Lucas*).—Paint your pots (we prefer stone colour), and the fungus will not grow upon them.

NAMES OF PLANTS (*Kate*).—Your Ferns are 1, *Lastræa spinulosa*; 2, *L. filix-mas*; 3, *L. filix-mas incisæ*; 4, *L. filix-mas polydactyla*; 5, *Polystichum angulare*; 6, *Lastræa filix-mas*; 7, *L. dentata*, var.; 8, *Athyrium filix-femina*; 9, *Asplenium adiantum nigrum*. You will find full directions for their culture in Mr. Johnson's "British Ferns." (*A. Robertson*).—From so imperfect a specimen we can only guess it to be *Salvia Tenorii*. (*C. M. S.*).—Only *Athyrium filix-femina* in various stages of growth. (*J. P. Boroughbridge*).—Peruvian Squill, *Scilla Peruviana*. (*B. P. Brent*).—A small frond of *Polystichum lobatum*. (*F. S., Salisbury*).—1, The feathered Hyacinth, *Muscari comosum*, var. *monstrum*; 2, Columbine-leaved Meadow-Rue *Thalictrum aquilegifolium*; 3, The creeping Greek Valerian, *Polcomonium reptans*; 4, One of the Speedwells, probably *Veronica austriaca*; 5, the great Leopard's-bane *Doronicum pardalianches*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

JUNE 23th and 30th. NEWCASTLE-ON-TYNE. *Sec.*, Mr. W. R. Pope, 44, Westgate Street.

JULY 1st, 2nd, 4th, and 5th. SHEFFIELD. *Sec.*, Wm. H. Dawson, Sheffield. Entries close the 15th of June.

JULY 21st. PRESCOT. *Sec.*, Mr. James Beesley, Prescott.

AUGUST 27th. HALIFAX. *Sec.*, William Irvine, Hothfield, Ovenden, near Halifax.

AUGUST 29th, 30th, 31st, and SEPTEMBER 1st. CRYSTAL PALACE. Poultry, Pigeons, and Rabbits. *Sec.*, William Houghton.

SEPTEMBER 22nd. BRIDGNORTH. *Sec.*, Richard Taylor, Bridgnorth.

OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. *Sec.*, Geo. Griffiths, 7, St. Swinith Street, Worcester.

N.B.—Secretaries will oblige us by sending early copies of their lists.

ESSEX AGRICULTURAL ASSOCIATION POULTRY SHOW.

THIS was held at Colchester, on the 16th inst. JUDGE—Mr. J. Bailly, Mount Street, Grosvenor Square, London.

DORKING (Coloured).—First, G. Griggs, Romford. Second, H. Lingwood, Needham Market, Suffolk. Third, Rev. J. G. A. Baker, Vicarage, Old Warden, Beds. Highly Commended, C. Punchard, Blunt's Hall, Haverhill. Commended, Mrs. Pattisson, Malden.

DORKING COCK (Coloured).—Prize, H. Lingwood, Needham Market, Suffolk. Highly Commended, Mrs. Pattisson, Malden; A. Tuck, Ingatstone.

DORKING (White).—First and Second, H. Lingwood, Needham Market.

SPANISH.—First, W. Bailey, Pleasant Place, Lower Kennington Lane, London. Second and Third, Mrs. Pattisson, Malden.

SPANISH COCK.—Prize, W. Bailey, Lower Kennington Lane, London. Highly Commended, Mrs. Pattisson, Malden.

GAME (White and Piles).—First, R. Josselyn, Mount Bures, Colchester. Second, S. Matthew, Stowmarket.

GAME (Black-breasted and other Reds).—First, S. Matthew, Stowmarket. Second, W. Rogers, Woodbridge. Third, Woodward and Waller, Stanway, Colchester. Highly Commended, Woodward and Waller, Stanway, Colchester.

GAME (Duckwing).—First, S. Matthew, Stowmarket. Second, W. P. Boghurst, Frating Abbey. Third, T. Hill, jun., Brentwood.

GAME COCK (of any age or colour).—Prize, S. Matthew, Stowmarket. Highly Commended, T. Hill, jun., Brentwood; R. Josselyn, Mount Bures. Commended, W. Rogers, Woodbridge; Woodward and Waller, Stanway.

HAMBURGH (Golden-pencilled).—First, Rev. T. L. Fellowes, Beighton Rectory, Acle. Second, Mrs. Pattisson, Malden. Highly Commended, W. Withington, Devizes, Wilts.

HAMBURGH (Silver-pencilled).—First withheld. Second, Rev. T. L. Fellowes, Beighton Rectory.

HAMBURGH (Golden-spangled).—First, Rev. T. L. Fellowes, Beighton Rectory. Second withheld.

HAMBURGH (Silver-spangled).—First, Rev. T. L. Fellowes, Beighton Rectory. Second withheld.

FOWLS OF ANY OTHER BREED.—Prize, A. G. Brooke, Woodbridge (Malay). Prize, T. P. Edwards, Lyndhurst, Hants (White Crested Black Poland). Prize, H. F. Wells, Ilford (Buff Cochins China). Highly Commended, G. Ray, Ivy Cottage, Minestead, Lyndhurst, Hants (White Crested Black Poland).

TURKEYS (Norfolk or Black).—Prize, W. P. Boghurst, Frating Abbey.

TURKEYS (Coloured or Grey).—Prize, A. Tuck, Ingatstone (Cambridge).

TURKEY COCK (of any age or colour).—Prize, R. Postans, Shelley Lodge, Hadleigh. Highly Commended, Miss J. Milward, Newton St. Loe, Somerset (French); A. Tuck, Ingatstone.

GRESE (Toulouse and Grey).—First, H. F. Wells, Ilford. Second, R. Postans, Shelley Priory, Hadleigh.

DUCKS (Aylesbury).—First, W. P. Boghurst, Frating Abbey. Second, W. Thompson, jun., Thorpe-le-Soken. Highly Commended, W. Thompson, jun., Thorpe-le-Soken.

DUCKS (Rouen).—First and Second, C. Punchard, Blunt's Hall, Haverhill.

DUCKS (any other breed).—First, G. S. Sainsbury, Rowde, Devizes, Wilts (Black East Indian). Second, W. P. Boghurst, Frating Abbey (Call).

We shall publish our comments of this Exhibition next week.

HOW I STARTED MY FOURTH APIARY IN 1859.

IT may not be uninteresting to your readers to know in what manner and under what circumstances I have once more recommenced the keeping of bees. Perhaps, also, there may be some little interest in the narration of a special kind to those who, like myself, prefer to arrive at their object by a quicker method than the ordinary plans in vogue. Most writers on bees, we all know, recommend the safe but slow mode of stocking an apiary by the purchase of natural swarms, which I too approve of, but do not think it necessary to adopt. It may be as well to mention that I have just completed the erection of a parsonage house, which rejoices in a tool-house, carpenter's shop, photographic den and bee-house, all in one. It is a small room, ten feet by six feet six inches, opening out into the kitchen garden, and facing south. It has a large window, five feet wide and four feet high, having two shelves and spaces for the accommodation of six hives or colonies of bees. The first of these spaces was occupied by a common straw "skep," or "lippen," in February last. It had been a first swarm of the previous year,—its queen's age uncertain. I had ordered it to be reserved for me soon after it swarmed, and it remained quietly all the winter in the cottage garden where I found it. When transferred to my bee-house window it flourished remarkably well, and was strong in drones, as well as in working bees, on and before Good Friday, *i.e.*, towards the close of April. Then, it will be remembered, followed a long period of very ungenial weather, with cold easterly winds; during which time I thought my bees were starving, as they brought out a quantity of drone-brood, besides that several fully-developed drones were seen lying dead in front of the apiary window. I did not scruple, however, on the 5th of May to force a swarm by driving from this hive, in the expectation of finding plenty both of drones and young bees. Judge, however, of my surprise at finding not a single drone in the hive, nor any quantity of young brood of any kind, so that the old hive was almost entirely depopulated when I placed the driven-swarm (transferred to a square box with glass windows) in the place of the old hive. No doubt the bees had obeyed their instinct in killing the drones when winter came, as they deemed it; while the cold wind had checked the queen in her breeding operations. I subsequently found this was the pretty general experience of all bee-keepers in my neighbourhood; so that the swarming season has, after all prognostications to the contrary, been a very late one. Had I returned the bees, and replaced the hive, I doubt not that a fortnight later matters would have been more favourable for the making of an artificial swarm without detriment to the parent stock. As it was, however,

being anxious to fill my bee-boxes, I did not hesitate to sacrifice the old hive. My driven swarm, therefore (a very large one), was allowed to establish itself in the box; where hitherto it has done so well, that I am in daily apprehension of its swarming, although I have given the bees a small super, in which they have been working well during the last week. I see a quantity of drone-brood coiled over, and young bees are issuing from the cells in numbers every day. Thus far, therefore, I see no cause to regret the transfer of my bees from their old hive.

My *second*, *third*, and *fifth* swarms were obtained likewise, severally on the 9th, 17th, and 30th of May, by driving out rather more than half the population of three stocks, which had been reserved for me out of their last year's stock by two farmers' wives living some two or three miles distant. In each case the parent stocks were left standing on their old stools, while the driven swarms were carried off in their several boxes as soon as they had crept up into them. Of course I took care to ascertain that their queens were with them. As might be expected, the last of these swarms was by far the strongest, although I took care that plenty of bees should be left behind in the old stock, besides the young brood which remained to be hatched out.

It will be understood that I reckoned upon each of these now-queenless stocks (and I could see no royal brood in any of them) hatching out young queens artificially. I also reckoned, not only upon finding these young queens fully developed at the expiration of three weeks, but upon being able at the same time to drive out the whole remaining population of the hives, as no eggs would have been laid in the interval, and the young brood left by the old queens would have been on the wing. At present my expectations have been realised only in the case of one of these stocks, from which I proceeded to take the second swarm, also by driving, on the 27th May. The young queen—a very lively one—was seen by me before she crept up into her future home; and it was evident that she was a worker bee transformed into a queen, from the peculiarity of the royal cell out of which she had issued being dependent from the middle, instead of from the edge of the comb. There were two such royal cells in the parent hive. The population of this swarm (which, in point of date, numbers as my *fourth* swarm), although not very great, was yet sufficient to promise well for the future. Its earliness will ensure its success. Of these five swarms (which are now doing well in my bee-house window) only the *fifth*, of May 30th, had any drones with them.—B. & W.

UNITING SWARMS.

ON May 26th I hived a swarm of bees into the centre box of one of Nutt's hives. On June 7th another swarm was placed in one of the side boxes of the same hive. The dividing-tins are down. May I remove these sliding tins and unite the two, and if so, when? My *hope* is that the united stock would fill, not only the two boxes now occupied, but also the third empty collateral box, and a glass on the top; but my *fear* is that a fearful battle and slaughter may result from the union. Could this evil be prevented by sprinkling the bees with honey, or how? The combs would be too young and tender, I fear, to turn up the box and sprinkle the bees. Would perforated zinc sliders, substituted for the sliding-tins previous to the union, be desirable, by bringing the bees to acquaintance gradually?

Having a very inactive hive (also Nutt's) about three years old which I had removed more than one hundred miles during winter, I united a swarm to it, in the usual way, a few evenings since. The swarm ascended very well into the old hive; but a sad fight ensued; and numbers of dead bees were found next morning under the united stock, which, however, is certainly now stronger and more active. I found the old hive heavy with honey, and one of the side boxes also, which was partly full of honeycomb. Was the above a prudent experiment, or what could I have done better?

Wishing to send back a cast to the parent hive (as I have done before) I secured the queen in a wineglass in the usual way, and destroyed her; but, contrary to the usual result, the bees returned to the empty straw hive, and not to the parent hive, to which, however, I joined them at night. Can you account for this unusual incident? Had there been two queens in the cast we should probably have detected them.—J. CHIVERY.

[There is always more or less difficulty in attempting to effect the union of two families of bees, hived separately, and established though but for a short time, as distinct colonies, in

boxes placed together collaterally. It would have been better, perhaps, had you at once removed the queen from the second swarm, when the bees would, most probably, with no very serious quarrelling, have joined the first family. As it is, time has been allowed for the establishment of a distinct community with new ties, and much fighting is to be feared by an abrupt junction. Fumigation and sprinkling under the immediate circumstances are undesirable, if not impracticable; but we have known a considerable mitigation of evil by the insertion of perforated zinc dividers for a few days previously to allowing the free communication between the boxes to be made. Even this procedure, though it might prevent much immediate commotion, is not always successful whilst two queens are still in existence; for we have heard of a well-authenticated case where, after a supposed junction had been effected, the two families continued to work amicably, side by side, through one and the same entrance. As respects your *second query*, you ought to have secured the queen before you attempted to join a new swarm to an old stock; and a little smoke puffed amongst them might have been serviceable in preventing a battle. As it is, you have probably introduced more of life and energy into the community, though at some loss by fighting. We should always be willing to incur a certain degree of risk in the case of an old lazy stock, which is usually stimulated by a sudden accession of numbers. Your *third query* involves little difficulty in the way of solution. The cast which you unsuccessfully attempted to reunite to the parent stock, was deprived of one queen only; whereas, two or three sometimes accompany after-swarms, and the capture of all of them should have been an ascertained point.]

OUR LETTER BOX.

BERMONDSEY ROLLER (*G. Chapman*).—I am not acquainted with that variety of Pigeon. I believe that the Rollers, in general, are only a variety of the common flying Tumblers, carefully bred to tumble a great deal. From what I can learn, they are usually red-mottled, and though not short-faced, still not nearly so long-headed as a common Dove-house Pigeon. They are not necessarily feather-footed, though some are; and in tumbling they ought to throw a clear somersault, one at a time, which they should repeat very frequently, but without falling or losing much ground with the flight. I believe the breed is much esteemed in Birmingham; and I should be much obliged by any fancier, well acquainted with the Rollers, if he would favour me with a full and accurate description of this very interesting sort of Tumbler Pigeon, with which, I am sorry to say, I am but slightly acquainted. I fancy I have heard of a variety of Dutch Tumblers, or Rollers, that rise a short way in the air and then roll over and over till they almost touch the ground. Perhaps some fancier can supply a fuller description.—B. P. BRENT.

ALMOND TUMBLER DEFICIENT IN FEATHERS (*An Amateur*).—Your Almond Tumbler "in semi-nudity, especially about the breast and neck," appears to be suffering from what is called "rotten-feathered." I am not aware of any cure; but it appears to arise from two causes—the first seems to be constitutional; there is a weakness or defect in the feathers themselves, and they break off at the quill, and are not replaced till moulting time. Possibly some advantage might accrue to the feathers by feeding on such food as would render the new feathers harder, stronger, and more perfect. I think that beans and barley might prove beneficial; while wheat and hempseed would be injurious. The second arises from fatness, or a relaxed state of the skin, in which the feathers fall out almost as soon as fully grown and are very slowly replaced. Such birds should be kept low, and strengthened by exercise. Perhaps barley and bran, or buckwheat, would constitute a good change of food; but I fear little advantage would be derived unless they are combined with the hardening and strengthening effects of cleanliness, fresh air, and exercise.—B. P. BRENT.

WET ROUP IN PIGEONS.—A *Subscriber* will be obliged by a cure for this disease.

[Mr. John Moore, who, I believe, was an apothecary, writing in his work entitled "Columbarium, or the Pigeon House," 1735, says:—"The wet roup next falls under our consideration; and in this case, once in two or three days, give them three or four peppercorns at most, and put a handful of green rue in their water." I have no personal experience of this disease, but I think, if the cause is removed, as draughts, or damp, that this disease, as well as coughs, asthmas, and similar complaints would yield to treatment with tartar emetic. Dissolve three grains of tartar emetic in one quart of spring water, and give the sick Pigeon one tea-spoonful morning and evening.—B. P. BRENT.]

LONDON MARKETS.—JUNE 20.

POULTRY.

The supply of poultry has been larger this week, and the trade has been dull. Prices were hardly maintained.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls.....	5 6	to 6 6	Turkeys	0 0	to 0 0
Smaller ditto	4 0	" 4 6	Pigeons	0 8	" 0 9
Chickens	2 3	" 3 0	Guinea Fowls	0 0	" 0 0
Geese	6 0	" 6 6	Rabbits	1 4	" 1 5
Ducklings.....	3 0	" 3 6	Wild ditto	0 8	" 0 9

WEEKLY CALENDAR.

		WEATHER NEAR LONDON IN 1858.										
Day of M th	Day of Week.	JUNE 28—JULY 4, 1859.	Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon R. and S.	Moon's Age.	Clock bef. Sun	Day of Year.
28	Tu	QUEEN VICTORIA CROWNED, 1838	30.141—30.032	78—41	W.	—	47 af 3	19 af 8	4 m 1	27	2. 48	179
29	W	ST. PETER.	30.110—30.071	77—40	N.	—	47 3	19 8	50 1	28	3 1	180
30	Th	Lissanthe strigosa.	30.131—30.048	80—40	S.W.	—	48 3	18. 8	sets	28	3 13	181
1	F	Hakea clavata.	30.062—30.018	70—43	N.W.	—	III	VIII	26 a 9	1	3 25	182
2	S	Telopea speciosissima.	30.051—30.000	71—52	N.E.	—	49 3	18 8	51 9	2	3 37	183
3	SUN	2 SUNDAY AFTER TRINITY.	30.189—30.114	62—41	N.E.	—	50 3	18. 8	10 10	3	3 48	184
4	M	Nandina domestica.	30.202—29.878	76—48	S.W.	.18	51 3	17 8	26 10	4	3 59	185

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 73.6° and 51.1°, respectively. The greatest heat, 93°, occurred on the 29th, in 1836; and the lowest cold, 35°, on the 30th, in 1848. During the period 132 days were fine, and on 82 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

THE plants permanently planted out in the borders of the conservatory should have a thorough soaking of weak liquid manure. Give all the air possible at this season, both night and day, and keep the house as neat and clean as possible. If it contains many tender stove plants, shut it up for an hour while the sun is on it in the evening, so as to produce a more genial atmosphere for them.

ACHIMENES.—Encourage them, as also *Clerodendrons*, &c., to grow and to prolong their beauty in the conservatory by supplying them with liquid manure, taking particular care not to give it too strong, especially at first.

CINERARIAS.—Sow seed immediately. Plants for early blooming should also be potted and started at once, choosing the strongest suckers for the purpose, and placing them in a cool, shady frame until they have made fresh growth.

CHRYSANTHEMUMS.—Propagate some for blooming in small pots.

HEATHS.—Pluck off the flowers and seed-pods as soon as they become unsightly, and prune straggling growth. The softwooded kinds—such as the *ventricosa*, &c.—do best in a sheltered situation in the open air, with means to protect them during heavy rains; while the woolly-leaved—such as *Masonii*, &c.—and hardwooded varieties delight in cold pits where the glass can be shaded or used for protection as necessary. Examine the plants which were not shifted in the spring, and, if necessary, pot them without delay; but if they require to be cut in, to make them bushy, it will be best to let them break afresh before they are repotted.

LESCHENAUTIAS.—If they have done blooming, and are pot-bound, to be repotted and placed in a shady place to make their growth.

STOVE AND ORCHID-HOUSE.

Give abundance of air to the stove plants at all favourable times, and abundance of moisture by all means. Examine young specimens that were potted early in the season, and shift at once such as require more pot room.

IXORAS.—Encourage the young plants by giving them plenty of air both night and day, to make short, sturdy growth; and discontinue stopping them for the season.

FORCING-HOUSES.

CHERRIES.—When the fruit has been gathered from the trees grown in tubs, or pots, it is advisable to place them in some open, airy quarter, to make their wood for next season's bearing.

FIGS.—Give liberal supplies of water to the trees now throwing up their second crop. A top dressing of old cowdung would now be useful. Pinch out the top buds, if the shoots are growing very long. It should be a practice to manage the trees during the summer that nothing more than a slight thinning out should be wanted at the winter pruning.

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MELONS.—Give attention to the crops now growing, in thinning out the shoots, stopping, &c.

PEACHES and NECTARINES.—When all the fruit is gathered, and the wood seems well ripened, it will be best to take the lights quite off, and place them under cover until wanted again. Plenty of air to be given to the trees that are swelling off their fruit. Also, stop in succession many of the strong shoots about the period the last swelling commences. Use the syringe freely over the leaves early in the morning and again in the evening.

PINES.—Give abundance of air to the fruiting and succession plants during the present fine summer weather, and saturate the paths and every open space with moisture, to prevent the leaves of the plants becoming brown. If such a practice is regularly adopted during hot, bright sunny weather, shading will seldom or never be necessary. Be at the same time particular in maintaining a mild, genial bottom heat.

VINES.—The houses containing ripe fruit will require to be kept dry and well ventilated; those swelling will still require attention to keep a regular steady temperature with regular supplies of air. *Muscats* very frequently require fires during the night and on wet, cold days.

WILLIAM KEANE.

THE HERBARY.

(Continued from page 119.)

HERBS FOR SEASONING AND GARNISHING.

PARSLEY (*Apium petroselinum*).—Petroselino is its Italian name. It is a hardy biennial, native of Italy. There are in cultivation three varieties—namely, the common plain-leaved, the thick curled-leaved, and the large-rooted *Hamburgh*. The plain-leaved, however, has almost gone out of culture, though it is hardier than the curled variety. They are both used for flavouring broths and soups, and to mix with other herbs for stuffing; also for fish-sauce. The beautiful leaves of the curled variety are much valued as garnishing to cold meats. The large-rooted *Hamburgh* is valued as an esculent. The long white roots are scraped and boiled, and make a good vegetable dish in autumn and winter. Sow the two first in drills nine inches apart in May, and thin the plants to five inches in the drills. In summer cut them over to obtain young leaves; and cut again in September to cause the plants to be close to the ground through winter. In autumn take up a few plants, pot them, and place them either in a greenhouse or in a cold frame: they will furnish young fresh leaves when those out of doors are covered with snow or hard frozen. The large-rooted variety sow in April or May in drills a foot apart, and thin the plants to nine inches asunder in the row. These will produce large tender roots by September, and may then be taken up and stored in sand in a cool room or cellar for winter use.

PURLANE (*Portulaca oleracea*).—This is an annual plant from South America. Purslane is used as a pot-herb, and in salads, and as a pickle. It is not so much

used as it deserves, for it is cooling and pleasant. Sow now on a warm border, and once a-month till August. The shoots are ready for use when they are two inches high. Water freely in dry weather. There is a variety called Golden Parslane, but it is not so good as the green variety.

SAGE (*Salvia officinalis*).—A low-growing undershrub; well known, and perhaps more esteemed for its savoury quality than any other herb of the garden. The leaves are used for many kinds of meats, especially geese and ducks. I remember when I was a boy, and living in Yorkshire, eating the young leaves spread on buttered cakes called cracklings, and sprinkled with pepper, with great gusto. I was then, of course, a hungry growing lad, and enjoyed my saged buttered crisp cakes very greatly. I think I could eat one with pleasure even now. Sage is much valued by the cook in various ways in the culinary art. For sore throats a decoction of the red-leaved variety is much recommended as a gargle. I found, a few years ago, a fine-broad-leaved variety in the gardens about Sheffield, which is well worthy of general cultivation. There are several varieties—namely, the common, the red-leaved, the narrow-leaved, and the broad-leaved. There are also some with the leaves variegated.

Sage is increased principally by cuttings. We have a proverb in Yorkshire as to the time of putting in Sage-cuttings. It is,—

“If Sage you wish with you to stay,
Take slips and plant them in the month of May.”

A proverb that, like many others, has a good deal of truth in it. I have planted hundreds of cuttings as an edging to cart-drives in a market garden in this month with scarcely a single failure. These cuttings, when they begin to grow, should have their tops nipped off and a little earth drawn to the stems. In moist weather roots will push forth in the partially buried stems; and the plants will form nice, round, low, dense bushes, which will stand any amount of cold, provided the soil and subsoil are moderately dry. This herb is also raised from seeds sown in spring; but the seedlings are so full of sap, and gross green wood, that they often perish in winter. Sage should be renovated every third year, and the flowering shoots always kept cut in. July is the best month to gather Sage to dry for winter use. If cut later, the plants have not time to make fresh growth and ripen the wood to stand the severity of the winter frost.

SAVORY (*Satureia montana* and *S. hortensis*).—The first is a hardy low shrub, and the other a hardy annual. Both are used as seasoners and in soups, the flavour being pleasant to most palates. The shrub may be increased by slips or cuttings in May, but seeds of both are sold in the seed shops. Both should be sown in drills in May, and may remain where they are sown and drawn up; the roots cut off, and the tops tied in bundles and dried in the herb-room for winter use. For using green, keep a few plants of the winter Savory in a bed of dry soil in an open situation.

SHALLOTS (*Allium Ascalonicum*).—A hardy bulbous-rooted perennial, a native of Palestine, found near Ascalon: hence its specific name. It is used for pickling and for seasoning; and is by some highly esteemed chopped up small and eaten raw with beef steaks or mutton chops. It is considered milder than the Onion.

Shallots are easily cultivated. Divide the root, or bulb, into separate cloves, and plant each division in rows five inches apart every way. The soil should be dry and in good order, but not manured the same season. The cloves, though small, will produce large bulbs by August; when, as soon as the tops turn yellow, take them up, dry and store them for use.

In rich, freshly-manured soil the Shallot is very liable to the attacks of the maggot. To prevent this, plant as advised above in undunged rich ground, and plant in raised drills—that is, draw with a hoe the soil into ridges; then draw a drill in the centre of each ridge, and plant

the cloves in that drill. As soon as the plants have begun to grow, and have got firm hold, level down the ridges, leaving the Shallots level with the general surface of the bed. So managed, the maggot will not be found amongst them to any extent.

TARRAGON (*Artemisia dracunculus*).—A hardy creeping perennial from Siberia. It is used in pickles to give a peculiar flavour. If the top and leaves are bruised and steeped amongst some good vinegar, a pleasant fish-sauce is the result. The young tops and leaves are used also in soups, sauces, and other culinary preparations. French cooks are very fond of using this aromatic herb, and woe to the gardener who does not provide it largely for them. It may be used either green or dry.

It should be cultivated in a warm dry soil; and may be propagated successfully in May or June by slips or cuttings of the young shoots; or it may be raised from seed sown in May. To obtain green tops early, plant some roots in pots, and place them in a gentle heat. Also in October remove some of the creeping roots, and plant them close to a south wall: they will be earlier by several weeks than in the open border.

THYME (*Thymus vulgaris* and *T. citriodora*).—The common and the Lemon Thyme. Both are hardy, low shrubs, and are used in soups, stuffings, and sauces. The first may be raised from seed annually, and treated as an annual—that is, gathered and dried, and seed sown every spring; but there is a variety that rarely flowers, and is more esteemed on that account. The Lemon Thyme is generally propagated by division about May or June. The safest way with both is to lay some fine, light, sifted soil amongst the shoots, and as soon as fresh roots are pushed into it, take up the entire plants, divide them into moderate-sized plants, and replant them immediately in any rich dry soil. They will make nice tufts by autumn, and will stand the winter well. For winter use, cut off some side-shoots, tie them up in small bundles, and hang them up in a dry room, or shed, to dry. Then put them in thin paper bags to keep off dust, and they will be fit for use when the plants out of doors are all covered with snow.

There are some few other herbs that are used for the pot and other culinary purposes, but they are so little used that it is scarcely worth while to take up space and the reader's time with them—such, for instance, as Borage, Burnett, Costmary, Indian Cress, Marigold, Dill, Clary, and Tansy.

T. APPLEBY.

(To be continued.)

CAULIFLOWER CULTURE.

“OF all flowers,” said Dr. Johnson, “commend me to the Cauliflower.” This was an ejaculation which has been often re-echoed by many epicures; amongst whom no vegetable ranks more highly than the subject of our present theme. Its lightness and succulence render it a general favourite: but to bring it to its acme of excellence requires the most liberal culture. The ground for it should be deeply trenched and highly manured. In its treatment it is necessary to have regard to three or four principal crops. The 1st sown at the end of August for producing early heads under hand-glasses, to come in about the end of May or beginning of June: the smallest plants from this sowing to be planted in a quarter for succession in July. 2nd, the first, second, and third spring sowings for summer supply. And 3rdly, a sowing made about the 20th of May for an autumnal and winter supply. These sowings, if well attended to, will give a constant succession; and if taken up late in autumn, and laid under the lights of a spare vinery, they will prove a most useful source of supply for the winter.

I am aware that it is not usual to pot Cauliflowers: it is more customary to prick them down in a two or three-light frame for the winter, and to plant them under hand-glasses in November. My practice is—and it is one I would recommend—to pot all my plants and stow them away in any cold Peach-house or vinery till February, when I plant the strongest under hand-glasses, reserving the weakest for the open quarter, and thus securing a succession.

We have here a very light and dry soil, and the grub is very troublesome. Having a store of potted plants, we are enabled constantly to replace those which have been destroyed by its ravages; and such plants do not miss their removal so much as plants stuck in with a dibble do.

It is very important that the seedling plants should be transplanted, or that they should be "pricked off" early (in the parlance of the gardener). Care should be taken by all means never to give them a check, which always induces premature fructification, and ends in producing what is called a "button." Therefore, in all hot dry weather they will be greatly benefited by a soaking (not a little drop) of water; which, if the soil is loosened up well with the hoe after the operation, will greatly benefit them. In fact, the value of deep hoeings must never be lost sight of in cultivating this or any other kind of vegetable.

It appears to me, that, in obtaining that luxuriance of growth so conducive to succulency and good flavour—so essential, in our estimation, to a really good vegetable—the soil should be rich and replete with manurial matters, ample space must be given for development, surface stirring must be a frequent operation, and liberal potations of liquid manure must be given. The result of these attentions will be vegetables of the mildest and most delicate flavour.

There are certain vegetables which seem as if they could not attain to their perfect state unless grown on rich soils; while there are some others which perfect themselves on soils comparatively poor. The Cauliflower and the Asparagus cannot be grown on soils too rich for them; and little can be done with them in soils which do not contain a fair portion of humus.

Cauliflowers in many old gardens are subject to club. This disease is very perilous and annoying, frequently destroying whole quarters of this vegetable. It is thought to arise from the puncture of an insect, the part swelling and appearing "clubbed." It is usual to cut off such clubs from the roots, and to replant them with little apparent result. I have found that deep trenching and bringing up the previously-unmoved soil and mixing it are a preventive of this evil, although not an invariable one.

Cauliflowers are difficult to get true to name from seed; and a host of high-sounding names are published, which, when tried, prove to be mere rubbish. We grew what we call the *Walcheren*, which is a most beautiful variety: it is perfectly close and as white as pure milk.

Cauliflower, as it is one of the finest, is also one of the most essential vegetables used at a gentleman's table. He who has it not in constant supply cannot be deemed a good gardener.—HENRY BAILEY, *Nuneham*.

REMINISCENCES OF HORTICULTURAL SHOWS.

It is much to be regretted that our horticultural exhibitions, as a whole, present a sameness which is greatly found fault with by that very numerous class of sight-seers who constitute by far the largest portion of the supporters of such shows. It is far from my purpose to find fault with the meritorious productions brought to such exhibitions: on the contrary, the skill of the various growers of plants and fruits cannot be too highly extolled; but a repetition of nearly the same list of plants in 1859 that was exhibited in 1849, is what I regret. It may, perhaps, be said that a good thing cannot be too often repeated, and plants like *Ipomoea coccinea*, *Rondeletia spinosa*, and *Leschenaultia formosa*, cannot be too often exhibited. Perhaps they cannot; but I should certainly like to see prizes offered for plants we never see at any of the large horticultural shows, merely because Fashion has ordained that others shall be the favourites. Would it not be worth the while of such societies as some of the metropolitan ones, excluding the winning species of plants at one show from exhibiting at the next? or if this be thought acting too severely, a list of those exhibited during the season in the winning-stands might be published, and notice given of their being excluded the following season. The great mass of the British public, how much soever they may say they admire flowers, are not so much in love with a limited number of species as to be entirely regardless of the rest. On the other hand, they want variety, and it is the want of that change which makes horticultural shows more a fashionable promenade than one of instruction in floricultural matters.

I fear I am giving offence to the gardening world by speaking

thus freely; but at the Crystal Palace Exhibition on the 8th inst., I had many opportunities of witnessing what I now state. Plants there were in abundance that were models of perfection in their culture; but which were passed carelessly by with the unconcerned remark that, "Oh! I have seen that plant so many times at the Show, that I wish they would send something else in its place." Ladies of rank leaning over the ropes listlessly observing that such a plant was very nice, but not better than they had seen it many years before. Now, as we are all more or less fond of novelty, the managers of our public exhibitions ought to keep pace with the public taste in that respect, and endeavour to infuse something fresh into the lists of plants exhibited, in what they call their "large collections." They have done a little by giving prizes to plants remarkable for their foliage; and prior to that some encouragement had been given by one or more of the London societies to collections of hardy evergreen shrubs in pots. This, I think, might be repeated, not at every show, certainly; but say once a year or so, in order to let the public see the various forms these interesting ornaments to dressed grounds present.

While finding fault with the lack of variety at the late Show, I cannot but admire one collection which I believe was exhibited regardless of a prize, but which I trust the Committee will see the prudence of giving suitable prizes to, and that was a nice collection of succulent plants, mostly of the Melon Thistle kind. These interesting objects were once the pride of our grandfathers' hothouses, and, doubtless, will have their turn again, just as Hollyhocks and some other plants have had. The specimens in this collection were in small pots, yet contained a greater number of species of plants than that of any one there, most of the dwarfer sections of the great Cactus family, with some *Proteas*, *Crassulas*, and others; but as I had no intention at the time of publishing my ideas of the Show, I did not note down the particulars; and I find the reporters of the Show doing as others had done before them—only noticing the large objects before them, Fashion not having yet deigned to notice these singular objects as worthy of her attention. Seedling *Pelargoniums*, differing but a fractional part of a shade from kinds we already have, being deemed more worthy the critic's notice than a whole collection of plants differing widely from everything else there, and also from each other.

As I find your pages already contain reports of the other objects of interest, I will not repeat them here; suffice it to say that I thought the stands of *Fuchsias* not first-rate, neither were the *Calceolarias* anything like so good as I have seen at a country show; but the *Gerauiums*, especially the *Fancies*, were super-excellent, and the hardwooded plants were all that could be wished for in their way. The Cactuses in flower were not remarkable; and there was nothing new amongst the plants with remarkable foliage—the varieties of *Begonias* of the *rex* breed being all inferior to the parent in so far as the marking was concerned. Of cut flowers I am no judge. Fruit was generally good, the only exception being the White Grapes, and the Melons in appearance: of their flavour I know nothing. The best things were Black Grapes, Pines, Peaches, Nectarines, and Strawberries. Figs and Cherries might also have been good, but I did not perceive anything in their looks to indicate merit above mediocrity.

As I do not belong to that class who bandy compliments where no compliments are due, I cannot close this paper without remarking that the late showery weather had told on the general management of the garden grounds at the Palace, as well as it has done in private places; the grass being longer than I ever remember to have seen it, and the walks were not in such nice keeping as I have seen them at other times. Doubtless the more restricted means the manager has at command is the cause of this, otherwise the planting of the vases and the general condition of the beds were all that could be desired; and though the planting was far from completed, enough was done to show it would be different to that of former years.—R.

TO KILL THE VINEGAR PLANT—BOIL IT.—The only precautions needed, are to strain through fine muslin into a tinned stewpan or enamelled saucepan with a cover, and place it over the fire till it begins to boil. Then to pour it out immediately into glazed stoneware jars, and cover up till cold, when it may be bottled for use. In this way, allowing for waste by evaporation, &c., a splendid vinegar may be obtained for about ninepence per gallon.—W. K. BRIDGMAN.

THE SCIENCE OF GARDENING.

(Continued from page 168.)

IN affording warmth to plants, we have seen that the earth is of considerable importance; and the power of accumulating and retaining heat varies as much in soils as the proportions of their constituents. Sir Humphrey Davy found that a rich black mould, containing one-fourth of vegetable matter, had its temperature increased in an hour from 65° to 88° by exposure to the sunshine, whilst a chalk soil was heated only to 69° under similar circumstances; but the first, when removed into the shade, cooled in half an hour 15°, whereas the latter lost only 4°. This explains why the crops on light-coloured tenacious soils are, in general, so much more backward in spring, but are retained longer in verdure during autumn, than those on black, light soils; the latter attain a general warmth the more readily, but part from it with equal speed.

M. Schubler has examined these phenomena more, and published the following tables. "The first," he says, "contains the results of a series of experiments which I made on the different degrees in which earths acquire warmth from the sun in fine weather. I placed these earths in vessels of four square inches in surface, and half an inch deep, and exposed them to the rays of the sun, coloured differently on the surface, and furnished with thermometers. The observations were made in the latter part of August, and between 11 and 3 o'clock in the day, while the temperature of the air varied in the shade from 72½° to 77° F. As all the observations could not be made at once, the temperature which sand acquired on the same occasion was in each case taken as the standard of comparison, to which all the several observations have been reduced.

Kinds of earth.	Mean of highest temperature of the upper surfaces of the earths. (77° F. in the shade.)			
	With a surface of the natural colour.		With dry earth.	
	Wet.	Dry.	With a white surface.	With a black surface.
	Degrees.	Degrees.	Degrees.	Degrees.
Siliceous sand, bright yellowish grey.....	99.1	112.6	109.9	123.6
Calcareous sand, whitish grey .	99.3	112.1	109.9	124.0
Gypsum, bright white-grey.....	97.3	110.5	110.3	124.3
Sandy clay, yellowish.....	98.2	111.4	108.3	121.6
Loamy clay, yellowish.....	99.1	112.1	107.8	121.1
Stiff clay, or brick earth, yellowish grey.....	99.3	112.3	107.4	120.4
Fine bluish grey clay.....	99.5	113.0	106.3	120.0
Lime, white.....	96.1	109.4	109.2	122.9
Magnesia, pure white.....	95.2	108.7	108.7	121.3
Humus, brownish black.....	103.6	117.3	108.5	120.9
Garden mould, blackish grey ..	99.5	113.5	108.3	122.5
Arable soil, grey.....	97.1	111.7	107.6	122.0
Slaty marl, brownish red.....	101.8	115.3	108.3	123.4

"The next table contains the results of trials made to determine the extent of the power possessed by different soils of giving out to surrounding bodies, in different lengths of time, the warmth communicated to them by the sun or the temperature of the atmosphere:—

Kinds of earth.	Power of retaining heat, that of calcareous sand being = 100.0	Length of time required by 30 cubic inches of earth to cool down from a temperature of 144½° to 70½° F. in a surrounding temperature of 61½°.
Calcareous sand	100.0	in 3 hours, 30 min.
Siliceous sand	95.6	3 — 20 —
Gypsum powder	73.8	2 — 34 —
Sandy clay.....	76.9	2 — 41 —
Loamy clay.....	71.8	2 — 30 —
Stiff clay, or brick earth	68.4	2 — 24 —
Pure grey clay.....	66.7	2 — 19 —
Fine lime.....	61.3	2 — 10 —
Humus.....	49.0	1 — 43 —
Fine magnesia.....	38.0	1 — 20 —
Garden mould.....	64.8	2 — 16 —
Arable soil.....	70.1	2 — 27 —
Slaty marl.....	98.1	3 — 26 —

Different plants affect different soils. Every gardener must have observed that there is scarcely a kitchen garden but has some particular crop which it sustains in luxuriance far superior to any other garden in its neighbourhood, or to any other crop

that can be grown on it. A garden we once cultivated would not produce, without the preparation of an artificial soil, the common garden Cress (*Lepidium sativum*), whilst the Raspberry was remarkably luxuriant; and we have seen that the composition of a soil has a main influence in these peculiarities.

It is certain that a soil is often considered unproductive, and the unproductiveness attributed to some deficiency in its staple, when, in truth, the defect arises from erroneous management. We have before stated an instance of tap-rooted plants being produced of superior size and form, by means of applying the manure deep below the surface. In another instance, some Parsnips being of necessity sown in a poor soil, some manure was turned in by trenching full twelve inches deep, but none applied to the surface; but, at the time of thinning, half the plants were left at an average of twelve inches distance between the plants, the other half at nine inches; when taken up for storing the whole were alike perfectly fusiform, but those grown at twelve inches apart were the finest, as four and a half is to three. If manure had been applied to the surface, the fibrous roots, it was calculated, would be multiplied at the expense of the caudex, to its much greater detriment, than by making the few, usually produced by this root, extend in length by enlarging the circuit of their pasturage.

Again, a more siliceous, darker-coloured soil should be employed for the growth of an early crop of any given plant than is required by the main crop; because such soil will more readily get rid of the superfluous moisture, and earlier acquire a genial warmth—two great desiderata for vegetation in spring. On the contrary, in autumn, for a late crop of Peas, for instance, the soil should be more aluminous; because in August and September, atmospheric moisture, in the form of night-dews, abounds: the foliage is, therefore, perpetually subject to alternate extremes of moisture and dryness, whilst the root is liable to a state of exceeding drought. The soil, therefore, should be rich, and kept in a minute state of division by frequent hoeing, that moisture may be absorbed; and it should be more aluminous, that such moisture may be retained.—J.

FERN CULTURE.

IN copying my sketch, forwarded with the communication given in your number for April 26 (No. 552), the artist has taken the license of altering it, which needs some explanation, as it is necessary to point out the error he has fallen into; because it involves one of the most important elements of success in growing Ferns in confinement, and which, as there represented, is an invariable source of failure.

My intention was to represent the section of a common dinner plate (not a soup plate), shewing the surface of the sand level with the inner edge of the rim, and the soil placed above it, and, consequently, higher within the glass than the edge of the plate upon which the glass rests. This little circumstance, although apparently so trivial, makes all the difference between success and failure; for when planted lower than the edge of the plate, the surface of the soil and all upon it become enveloped in a damp and stagnant atmosphere; and mouldiness, damping off, and the plants becoming unhealthy are the invariable consequences. This is one of the principal reasons why Ferns so seldom continue long in good condition when grown in the deep glass pans usually sold for that purpose.

When either seedlings are to be raised, or Ferns grown under a glass shade, and kept either in a sitting-room or in an ordinary greenhouse, the glass cover should be pressed down into the soil, upon the edge of the plate, and then, by keeping the small portion of soil outside moderately damp, it will prevent the soil, or the atmosphere within, from getting either too wet or too dry. The dryness or amount of moisture in the air of the room in which they are kept has very much to do with success, as, the more moisture the air may contain, the less wet will be required on the surface of the soil; but this will be fully explained when speaking of ventilation and circulation of the air. For our present purpose—that is, in raising seedlings, if kept in the house, they must not be placed at or near an open window, but in a corner, a recess, or in a window with the upper sash only to be opened. By far the best place is a small pit sunk a few inches below the surface of the ground, and a shallow frame covered either with a glazed sash or oiled paper. The floor and the cover should both slope to the north, and at such an angle that the sun may shine upon the lowest part of the floor. To prevent the air which is enclosed

within the frame getting too hot, the outer surface of the covering, whether of glass or paper, should be mottled over with *paste and soot*. This should not be put on in streaks, or a uniform coat, but *daubed* with the end of the brush, so as to have the appearance of small black specks with lighter spaces between them. Or common black oil-paint may be used, thinned with turpentine, when more durability is required. I have tried every variety of shading, and have no hesitation in pronouncing this to be the best, and very far superior even to the roughened glass.

One of the frequent sources of failure with Fern seedlings is their coming up too thickly, so that there is insufficient room for them to become fully developed. There are two ways of dealing with them when this occurs.

The first is, to take out small portions on the end of a penknife and transplant them in little tufts to another plate; then, by having the soil thoroughly wetted, both those which remain and those which have been removed may be stirred about so as to separate them more completely.

The other plan is to skim off a small portion of the surface, and put it into a teacup with a little clean water, to stir it well but gently until the plants are thoroughly separated, and then to pour it equally over the surface of a fresh portion of soil previously moistened and spread out to receive it. This is an expeditious and uniformly successful method, if resorted to sufficiently early; and when a batch of seedlings from any choice spores have been obtained, it is worth a little extra trouble not to risk losing them.

—W. K. BRIDGMAN.

FLOWER SHOWS AND JUDGES.

I HAD a mind, for a long time, to tell why I refuse to go out of London to judge at Flower Shows, and this seems a fair opportunity for doing so. The Horticultural Society having gone to Bath or Coventry, the Regent Park Society being apprehensive of a swarm of bees or locusts, from the plains of Chiswick, alighting on the turrets of Kensington, and the exhibitors, judges, and reporters at the Crystal Palace not rightly understanding who is right or who is wrong—considering all this, it cannot be much of an intrusion if I tell the reason why I refuse.

Some twenty or five and twenty years back, it was the fashion to register vows, some in one place and some in another. O'Connell registered his vow in heaven, as he said; and I registered a vow over Handel's grave. He lies where I then went to church—at Little Stanmore, near Edgware. My vow was taken three days before it was registered, in the presence of Mr. John Henderson, then proprietor of the Pine Apple Place Nursery, and now retired on his laurels, and in the presence of the late Mr. Catleugh, another well-known nurseryman. We were the three Judges at one of the best-conducted county Shows near London. We often "went out," separately, with other Judges, but then for the first and last time by ourselves. We were three of a kindred spirit—each a practical man, who cared no more for the man in the moon than for the dogs who barked at him and her. We compared notes, and found out that it was not the good of gardening or gardeners that was then the ruling passion for Flower Shows, that one had one turn and one another turn, and that all the turnings were on the left-hand side of the way. We considered ourselves as three of the guide-posts; and not liking the left-hand turnings, we resolved to take down three of the guide-posts which pointed the way we did not approve of.

This resolution was equivalent to a vow that neither of us would go out so again "as long as he lived;" and, as I said, I registered my part of the vow over Handel's grave next Sunday, and refused to act as a Judge, and to take pot luck, even though solicited by the Editor of THE COTTAGE GARDENER, eighteen years after the registry, anent the judging of their Flower Shows. But he who lives the longest of the three may go out again if he choose, when the other two are gone. Therefore, it will save bother to know that Messrs. John Henderson and D. Beaton cannot go out of London to judge for love or money.

This explanation may serve as an introduction to the following letter:—

"I am glad you have so spoken out about the mystifying of the exhibitors' tickets. When our people had staged the new *Saliginella* and *Gleichenia* at the Crystal Palace, a printed card, stating from whom they were, was placed to them. On re-admission at twelve o'clock, this card was found to have been placed under one of the pots, and its *blank* side up, thus making the two plants appear to be part of Mr. Veitch's group.

"If I read your notes correctly, you had to turn up most of the cards to the new plants to get at the exhibitors' names. It is well that there is a COTTAGE GARDENER, and a writer fearless enough to censure the 'mauling and ironing' occasionally done elsewhere.

"By the way, if all Flower-Show managers were, and had been, as courteous as Mr. Eyles, there would be but few grumblers, and those of that never-satisfied class, unless invariably successful."—ROBT. SIMS, jun., *Foot's Cray Nursery*.

All the best practical Judges at the Crystal Palace told me the plan of concealing the names of the exhibitors, or the make-believe plan, was most absurd as far as they, the Judges, were concerned. Let the proceeding be ventilated fairly, justly, and gentlemanly, for the credit of the Crystal Palace Company, who desire to adopt the best practical course.—D. BEATON,

NOTES ON NEW OR RARE PLANTS.

BORONIA DRUMMONDI. *Planch.* Nat. ord., *Rutaceæ*. Native of West Australia.—Evergreen, dwarf, erect. Branches slender, round. Leaves opposite, nearly sessile, pinnate; leaflets from three to seven pairs, and a terminal one, which is shorter than the lateral ones; linear, dark green. Flowers axillary and solitary; peduncles short, with two minute bracts a little above the base. Calyx consisting of four acute, ovate, glandular, green sepals, thickly marked with small pellucid dots. Petals four, ovate, beautiful rosy-purple. Stamens eight, arising from the base of a large glandular disk surrounding the ovary, opposite and alternating with the petals; the four which are opposite shorter than the others—all are glandular and curve towards the pistil with capitate anthers. Pistil short, very stout, with a large, green stigma.

A very beautiful greenhouse plant, whose habit, naturally so good, requires little trouble to form it into handsome specimens. A compost of sandy peat, with a little light loam and small bits of charcoal, suits it best. The drainage must be kept in the most perfect condition to ensure success. The flowering of this, as well as many other *Boronias*, is much enhanced by being placed in a temperature a little higher than that of the greenhouse. Cuttings of the partially-ripened shoots, in very mild heat, root freely. Flowers in April and May.

BORONIA POLYGALIFOLIA. *Sm.* Nat. ord., *Rutaceæ*. Native of West Australia.—Glaucous, erect, rather lax. Branches slender, smooth, round; when young, glaucous. Leaves opposite, entire, obtusely elliptical, thick, obscurely serrate. Inflorescence cymose, terminal, and axillary. Calyx of four acute, ovate, red-tinted sepals. Petals four, bluntly ovate, pale rosy-purple. Stamens eight, nearly equal. Pistil short. Ovary four-celled, seated upon a large, red, fleshy disk.

Very distinct from the above, but equally desirable. It requires a little more attention to stopping and tying out; but in other respects it should have the same kind of treatment as *B. Drummondii*. It comes into flower a little later.

ADENANDRA UMBELLATA. *Willd.* Nat. ord., *Rutaceæ*. Native of the Cape of Good Hope.—Shrubby, compact, very handsome. Branches erect, reddish, glutinous. Leaves sessile, lanceolate elliptical, ciliated with minute glandular hairs, thickly covered on the under side with dark green dots containing oil. Flowers terminal, nearly sessile, sometimes several together, then they are umbellate, but more usually solitary. Sepals five, lanceolate, reddish, ciliated from the base half way up with minute glandular hairs. Petals five, broadly elliptical, minutely ciliated, pink on the outside, white on the inside, with a narrow line of delicate crimson running from the base half way up the centre. Stamens ten, five fertile and five barren; the first having at the apex of each anther a round stipitate gland, which falls back as the anther becomes matured. Style short, with a capitate green stigma.

This may not be termed a free-blooming plant, but it is certainly a beautiful and highly interesting one. Mr. Fish, in a late number of THE COTTAGE GARDENER, gave excellent instructions on the culture of this plant, under the name of *A. speciosa*, under which it is more generally known in gardens.

BOSSLEA LINOPHYLLA. *R. Br.* Nat. ord., *Leguminosæ*. Native of New Holland.—Very graceful, about three feet high. Branches slender, compressed, with, when young, a narrow, slightly transparent, wing. Leaves sessile, linear, narrow, obscurely mucronate. Flowers axillary, two or three together, on

short, very slender peduncles. Calyx two-lipped; the upper lip nearly entire, and the lower one divided into three small, very acute teeth. Standard, orbicular, emarginate, scarcely reflexed, orange, marked at the base with lines of crimson. Wings small, orange. Keel small, dull crimson.

One of the most profuse blooming and graceful of our greenhouse plants. The slender-drooping branches are, in April and May, literally clothed with its small but lovely blossoms. It should be freely pinched in its growing season, to induce the formation of plenty of branches; for those of the present season's growth are the flower-bearers of the following spring. Two parts of good peat and one of light fibry loam, freely mixed with sand, make an excellent compost for it. Cuttings of partially-ripened shoots root freely in a cool frame; and the best plants are produced from cuttings, but it also ripens seeds.—S. G. W.

OLD-FASHIONED FLOWERS.

"I WOULD give almost anything for early spring flowers, particularly the old-fashioned flowers of my childhood," was the exclamation of a lady in the Leeds new market; and how many of the readers of THE COTTAGE GARDENER would do the same, if they could lay hands on them.

There is one class of old-fashioned flowers much neglected,—I allude to the Gentians. The common *Gentianella* is not so much grown as formerly. It is said all soils do not suit it; but it might be better kept if it got rather more moisture. The best edgings of it I remember seeing were kept without any extra care, along with rare Sedums and Saxifrages, in an old-fashioned garden attached to a house within a stone's throw from where I write this, at one time the residence of the celebrated writer, Currer Bell, the subsoil of the garden a strong clay.

The beautiful *G. verna* is not so common as it ought to be. In fact, it is rare to meet with it in gardens, and is highly prized by nurserymen. Why it should be so I cannot tell. A pot plant was valued at half-a-crown by one a few weeks since. The account given by Baines, in his "Flora of Yorkshire," shows it to be very common in Teesdale. He writes,—"This little plant, one of the most beautiful of Flora's gems, will grow well in pots or the open border, if planted in a mixture of fresh hazel loam and pebbles, even in the smoke of a city. On the Durham side of the Tees thousands of acres are studded with its bright blue flowers. No district of the same extent in the kingdom will reward the botanist with so rich a harvest as Teesdale."

Will some of your Teesdale readers tell us if it is as common now as when the above was written?—RUSTIC ROBIN.

[We quite sympathise with "RUSTIC ROBIN" in his love of "old-fashioned flowers." We remember a garden "long, long ago," of which Rockets, Moss Roses, Globe Thistles, Solomon's Seal, Honesty, and many such-like, were the chief ornaments. We never loved a garden better than that. We shall be glad of notes on "old-fashioned flowers."—EDS.]

ALOES v. APHIS.

LIKE many others, I have been much disappointed at the non-success of aloes as a destroyer of the green fly, or aphis, which, in this district, is proving very destructive this season. Immediately after reading your correspondent's letter in which he stated how successful aloes had been in his hands in destroying this garden pest, I obtained some and dissolved it according to the instructions given. I applied it for several successive days to an infected Rose tree, but without producing the least beneficial effect. I think the gentleman who made the statement should let us know where it is we are all wrong; for surely it cannot be the aloes that is at fault. That would prove your correspondent to have been much more careless in his observations than any one ought to be who publishes the result of his observations for the guidance of the public.—A WARWICKSHIRE CORRESPONDENT.

HAVING seen in THE COTTAGE GARDENER a request that all who have tried aloes on the green fly would give you the result of their experiments, I write to inform you, that I have for some weeks tried its effect in the proportion of 1 lb. of the best Barbadoes aloes to six gallons of water on my Roses and Cinerarias. I

have both dipped the shoots and syringed them, and I have no hesitation in saying that it is perfectly worthless as a remedy. It neither destroys the fly nor prevents its return.

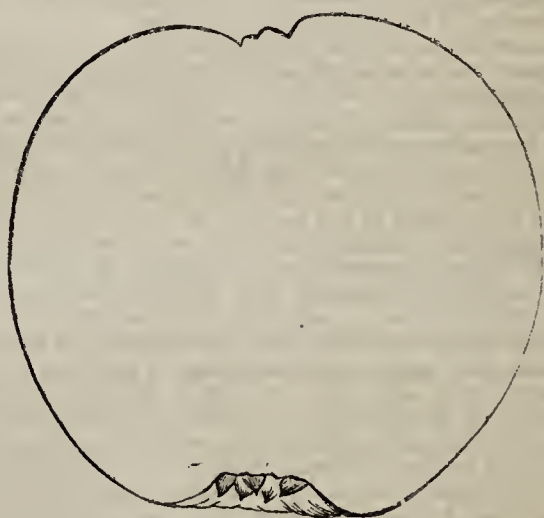
Two days ago I syringed a Rose tree with a much stronger solution than the above, completely clearing the tree of every aphis. The result is, that the foliage is almost black from the quantity of aloes on it, and there is not a shoot that is not at this moment covered with green fly.

The only cure for the fly on the Roses is tobacco smoke, which I have applied effectually in the following manner. I put over the tree a wire frame covered with brown paper, and over it a brown-holland cover, which I tie round the stem of the plant. I insert one of Brown's fumigators at the tie, and one or two turns are sufficient to fill the cover. In about ten minutes every fly is dead. If the cover is removed sooner the fly revives. The operation is rather long if you have many Roses, but it is effectual, and your bloom repays you for your trouble. As Brown's fumigator throws out the smoke cold, it does not in any way injure the plants.—M. F. W.

FRUITS AND FRUIT TREES OF GREAT BRITAIN.

(Continued from page 109.)

WHEN the season of spring pears has passed; when Josephine de Malines, Beurré de Rance, and others of the same merit are over, we gladly return to apples again; for those pears that prolong the season till May are, after all, rarely worthy of a place in the dessert, so far as their flavour is concerned. It is true they are called "melting pears," but in reality they are only half melting, or crisp, and their flavour is only a sweetness without aroma. It is, therefore, an agreeable change to fall back upon a good Sturmer Pippin or Ashmead's Kernel, with their richly-sugared, sprightly juicy, and high aromatic flavour. Of this class of Apples there are, unfortunately, too few, and it is, therefore, with pleasure that I am enabled to introduce to our readers the two following sorts, which will take rank with those already named.



NO. XXI.—DUKE OF DEVONSHIRE APPLE.

Fruit fragrant; about medium size, two inches and a half wide, and two inches and a quarter high. The shape is roundish ovate, even, and regularly formed.

Skin of a uniform lemon yellow colour, but approaching an orange yellow; and with a dull red cheek on the side next the sun; it has several large, thinly-spread russet dots, and thin veins of russet over the surface.

Eye large and open, with incurved, broad, flat segments, set in a deep and rather wide basin.

Stalk very short, and but very slightly depressed.

Flesh yellowish, crisp, and very juicy; juice rich and sugary, with a fine aroma.

A first-rate dessert apple which ripens about February, and keeps till the end of May.

This excellent apple was raised at Holker Hall, Lancashire, in 1635, by Mr. Wilson, gardener to the present Duke of Devonshire. The original tree has attained a considerable size, is very healthy, and exhibits no symptoms of canker. In the foliage it

resembles the old Nonpareil. Trees of it are for sale by Mr. Stark, of Edinburgh.

NO. XXII.—LODGE-MORE NONPAREIL APPLE.

SYNONYME.—*Clissold's Seedling*.

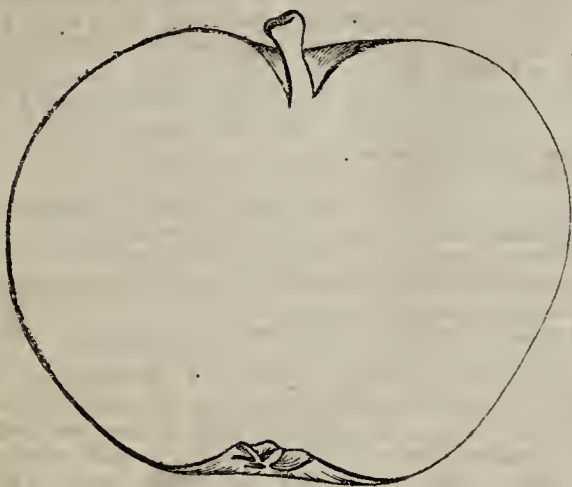
Fruit fragrant, roundish, and reinette-shaped.

Skin, when fully ripe, of a deep golden yellow colour, dotted with minute grey dots where shaded, and flushed with red where exposed to the sun.

Eye slightly closed with broad flat segments, and set in a narrow saucer-like basin.

Stalk a quarter of an inch long, inserted in a narrow and pretty deep cavity.

Flesh yellowish, firm, crisp, and juicy; juice rich, sugary, and with a fine aroma.



This is a first-rate dessert apple, and keeps well till the end of May and the beginning of June. It is evidently a seedling from the old Nonpareil, and has very much the character of that variety round the eye.

The tree is hardy, and an excellent bearer. It was raised about forty years ago by a Mr. Cook at Lodge-more, near Stroud, in Gloucestershire.

I am indebted for the fruit to the Rev. John Bramhall, St. John's Vicarage, King's Lynn, who has grown it for a number of years, and found it invariably to keep well, and maintain its constant character. I am informed that Mr. Turner, of Slough, Mr. Rivers, of Sawbridgeworth, and Mr. Foster, of Stroud, can supply trees of this variety.—H.

STANDARD ROSES ON DOG-ROSE STOCKS.

ALTHOUGH it is admitted that standard Roses have, in certain situations, a much handsomer appearance than those which stand on their own roots, yet disappointment has been felt by the former decaying and dying down far earlier than the latter.

The reason of this is twofold. If certain kinds of Roses—those of a more weak or more tender kind—should be grafted on the stock of the Dog Rose, or Wild Brier, they do not exhaust the sap which comes up through the stem, which is, therefore, lost and goes to corrupt the stem or the stock on which they are grafted. But the other reason is the stronger one. In the course of a few years the stock becomes bark-bound, and the sap from its roots cannot ascend—it is constrained and choked.

But just because it has not thus free vent, and cannot ascend, it takes another course. By a beautiful provision (and all such things in nature should be wisely observed), it prepares a substitute for the old and worn-out Brier. For, near its root, it will generally be seen, there spring up a number of suckers, or new shoots, which protrude themselves from the earth all around.

Now, let the strongest of these shoots, or suckers, be cherished and cared for (the rest may, or should, be pulled up), and let it be trained up alongside of its decaying parent, and when it becomes tolerably firm and strong, fresh Roses of all the varieties may be budded upon it, and the old stem then removed.

In my borders here, by the care of my good gardener, this process has been very successful this year. And so I have before me an exemplification of the fact, that among Roses, as in the

families of men, a young scion rises and grows up by the side of its parent; and, being suitably wedded, perpetuates the race, when the original stock fades and is removed.—ROBERT PAUL, *Kirkland Lodge, Kermiston*.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 169.)

PEACHES.

EARLY NEWINGTON (*Smith's Early Newington*).—Fruit medium sized, rather oval. Skin of a pale straw colour on the shaded side, and streaked with purple next the sun. Flesh pale yellow, tinged with light red next the stone to which it adheres; juicy and well flavoured. Flowers large. Glands none. Ripe the end of August and beginning of September.

Early Newington Freestone. See *American Newington*.

EARLY PURPLE (*Pourprée Hâtive; Pourprée Hâtive à Grandes Fleurs; Vineuse*).—Fruit medium sized, roundish, depressed at the apex, divided on one side by a deep suture extending from the base and across the apex. Skin covered with a thick down, pale sulphur yellow, thinly dotted with red on the shaded side, and deep purplish red next the sun. Flesh white, separating from the stone, red under the skin on the side which is exposed to the sun, and very deep red at the stone; of a rich vinous and sugary flavour. Flowers large. Glands kidney-shaped. Ripe the middle and end of August.

Early Purple Avant. See *Grosse Mignonne*.

EARLY SAVOY (*Précoce de Savoie*).—This is a variety of *Grosse Mignonne*, but more ovate in shape, and paler colour on the side next the sun. It is an excellent variety, and ripens in the end of August. Glands none. Flowers large.

EARLY TILLOTSON.—Very like Royal George.

EARLY YORK.—Fruit medium sized, roundish, inclining to ovate; marked on one side with a shallow suture. Skin very thin, delicate greenish-white, dotted with red in the shade, but dark red next the sun. Flesh greenish white, melting, very juicy, vinous, and richly flavoured. Glands none. Flowers large. Ripe in the beginning and middle of August.

One of the best early peaches.

Early Vineyard. See *Grosse Mignonne*.

Edgar's Late Melting. See *Chancellor*.

English Galande. See *Violette Hâtive*.

FLAT PEACH OF CHINA (*China Peach; Java Peach*).—Fruit small, so much depressed at both ends as to form a deep hollow on each; in the top one is set a broad, rough, and five-angled eye. Skin pale yellowish-green, mottled with red next the sun. Flesh pale yellow, free, red at the stone, sweet, juicy, and noveau flavoured; forces well in pots. Middle and end of September. Flowers large. Glands kidney-shaped.

I believe this peach does not now exist in this country, all the trees having been killed by the severe frost of 1838.

Forster's Early. See *Grosse Mignonne*.

French Galande. See *Bellegarde*.

French Magdalen. See *Red Magdalen*.

French Mignonne. See *Grosse Mignonne*.

Galande. See *Bellegarde*.

GEORGE THE FOURTH.—Fruit large, round, swollen on one side of the suture. Skin yellowish white dotted with red, and rich dark red next the sun, mottled with dark red where the two colours blend. Suture deep at the summit. Stalk set in a hollow depression. Flesh pale yellow, rich, vinous, and juicy. Flowers small. Glands round. Early in September.

This is a very large and very excellent peach.

Golden Fleshed. See *Yellow Alberge*.

Golden Mignonne. See *Yellow Alberge*.

GREGORY'S LATE.—Fruit large, ovate, and pointed. Skin pale green on the shaded side, and with a dark red cheek, like Royal George, on the side next the sun. Flesh very melting, vinous, sugary, and highly flavoured. Glands round. Flowers small. Ripe in the end of September, or beginning of October.

This is an excellent late melting peach, somewhat later than Late Admirable.

Griffith's Mignonne. See *Royal George*.

Grimwood's Royal Charlotte. See *Royal Charlotte*.

Grimwood's Royal George. See *Grosse Mignonne*.

Grosse Jaune. See *Yellow Admirable*.

Grosse Malecoton. See *Pavie de Pomponne*.

GROSSE MIGNONNE (*Avant; Early Purple Avant; Early Vineyard; Forster's Early; French Mignonne; Grimwood's Royal George; Johnson's Early Purple Avant; Neil's Early Purple; Padley's Early Purple; Ronalds' Galande; Royal Kensington; Royal Sovereign; Smooth-leaved Royal George; Superb Royal*).—Fruit large, roundish, somewhat flattened, and furrowed with a deep suture at the top, which seems to divide it in two lobes. Skin pale greenish-yellow mottled with red, and deep brownish-red next the sun, covered with fine soft down. Flesh pale yellow, red under the skin on the side next the sun and at the stone, rich, and delicate, vinous, and highly flavoured. Stone small, very rough. Flowers large. Glands round. August and September.

Grosse Pêche Jaune Tardive. See *Yellow Admirable*.

Grosse Persèque Rouge. See *Pavie de Pomponne*.

Hardy Galande. See *Violette Hâtive*.

HÂTIVE DE FERRIÈRES.—Fruit medium sized, roundish, marked with a shallow suture, which is higher on one side than the other. Skin white, almost entirely covered with bright red. Flesh white, with a slight tinge of red at the stone, melting and juicy, with a rich vinous flavour. Glands round. Flowers large. Ripens in the beginning of September.

HEMSKERK.—Fruit medium sized. Skin yellowish-green, spotted with scarlet, bright red mottled with darker red next the sun. Flesh greenish-yellow throughout, rich and delicious. Stone small, and smoother than any other peach. A good bearer. Flowers large. Glands none. Ripens in the end of August.

Hoffmann's. See *Morrisania*.

INCOMPARABLE.—Very similar to the Catherine, but not so good. Flesh clingstone. Flowers small. Glands kidney-shaped.

INCOMPARABLE EN BEAUTÉ.—Fruit large, round, and depressed at both ends. Skin pale yellowish-green in the shade, but streaked with crimson and covered with deep brownish-red next the sun. Flesh white, dark red at the stone, melting and juicy, vinous, and with a somewhat musky flavour. A very showy fruit, but is not of first-rate quality. Flowers small. Glands round. Middle of September.

Italian. See *Malta*.

Java Peach. See *Flat Peach of China*.

Johnson's Early Purple Avant. See *Grosse Mignonne*.

Judd's Melting. See *Late Admirable*.

Kew Early Purple. See *Royal Charlotte*.

LATE ADMIRABLE (*Judd's Melting; Motteux' Seedling*).—Fruit very large, elongated, terminated with an acute swollen nipple. Skin yellowish-green, pale red and marbled and striped with deep red next the sun. Suture deep. Flesh greenish-white, with red veins at the stone, delicate, juicy, rich, and vinous. Flowers small. Glands round. Middle and end of September.

One of the best late peaches.

Laté Chancellor. See *Chancellor*.

LEOPOLD THE FIRST.—Fruit very large, round, pitted

at the apex, and marked with a distinct suture on one side. Skin pale yellow, tinged with red, and very slightly, or not at all, washed with red next the sun. Flesh tender, very melting, vinous, and perfumed. Glands round. Flowers large. Ripens in the middle of October.

Lockyer's Mignonne. See *Royal George*.

Lord Fauconberg's. See *Royal Charlotte*.

Lord Montague's. See *Noblesse*.

Lord Nelson's. See *Royal Charlotte*.

Madeleine Blanche. See *White Magdalen*.

Madeleine de Courson. See *Red Magdalen*.

Madeleine Rouge. See *Red Magdalen*.

Madeleine Rouge à Petites Fleurs. See *Royal George*.

MALTA (*Belle de Paris; Italian; Malte de Normandie; Pêche de Malte*).—Fruit large, roundish, flattened at the top. Skin greenish-yellow, blotched with dull purple next the sun. Suture broad and shallow. Flesh greenish, light red next the stone, rich, vinous, juicy, slightly musky, and deliciously flavoured. Bears carriage better than any other peach. Flowers large. Glands none. August and September.

Mellish's Favourite. See *Noblesse*.

Mignonne Hâtive. See *Early Grosse Mignonne*.

Mignonne Petite. See *Small Mignonne*.

Millet's Mignonne. See *Royal George*.

Monstrous Pavie of Pomponne. See *Pavie de Pomponne*.

Montagne. See *Montaubon*.

Montagne Blanche. See *White Magdalen*.

MONTAUBON (*Double Montagne; Montagne*).—Fruit medium sized, roundish, narrow at the top. Skin pale greenish-yellow, red, marbled with darker red next the sun. Suture distinct. Flesh white to the stone, rich, and juicy. A good bearer. Flowers large. Glands none. End of August.

MORRISANIA (*Hoffmann's; Morrison's Pound*).—Fruit very large, round. Skin dull greenish-white, and brownish-red next the sun. Flesh pale yellow, juicy, sugary, and richly flavoured. Flowers small. Glands round. Middle and end of September.

Motteux's Seedling. See *Late Admirable*.

MOUNTAINEER.—Fruit large, roundish, somewhat pointed at the apex. Skin nearly smooth, pale yellow, dotted with red on the shaded side, but dark red next the sun. Flesh pale yellowish-green, rayed with red at the stone, melting, juicy, and richly flavoured. Glands round. Flowers large. Early in September.

(To be continued.)

QUERIES AND ANSWERS.

TAPS TO PREVENT HOT WATER CIRCULATING.

"Will one tap on the flow-pipe be sufficient, when closed, to prevent the circulation in a branch from it, or must there be one in a corresponding position on the return-pipe? It seems to me that one tap should do; but Macintosh gives all his drawings with taps on both flow and return."—A COUNTRY SUBSCRIBER.

[When convenient we like to have both top and bottom taps; but practically it is not of much moment. If the return enters near the bottom of the boiler, and the flow is shut off, the heat from the bottom of the boiler may heat the return-pipe a little for a few feet. We find that there is nothing like circulation if the flow-pipe is shut off.]

EMPLOYING OLD WINDOW-SASHES.

"I have five window-sashes each five feet high, and three feet wide. How can I make them available for the construction of a little greenhouse in my garden?"—AN OLD SUBSCRIBER.

[Your sashes would make a nice pit or frame fifteen feet long, with a back wall of wood or brick, say three feet and a half, and the front eighteen inches, that would hold a great many things; but you must move the sashes to get at them. The cheapest way to form a greenhouse in which you could walk, would be to have a back wall of wood or brick, about seven feet

in height, and three feet and a half in front. The sashes would rest on back and front close together, and a slip of wood be placed over the junction. Air would be given in the back and front wall. For instance, if made of boards, a board could swing all the way. You could then have a twenty-inch pathway in the middle, and a twenty-inch shelf on each side. Were we to make the most of such glass with as little expense as possible, we should set out a place nine feet wide, and fifteen feet long, raise a wall all round of wood or brick three feet and a half high, have a ridge-board in the centre seven feet from the ground, place the glass on the sunny side, asphalt felt on the other, and have the walk beneath the latter.]

ENTOMOLOGICAL SOCIETY.

THE June Meeting of the Entomological Society was held on the 6th inst.; the chair being occupied by the President, Dr. J. E. Gray, F.R.S., &c. Amongst the presents received since the last Meeting were the publications of the Royal Dublin Society, the Linnean Society, the Smithsonian Institute (containing a carefully compiled catalogue of all the hitherto-described dipterous insects of North America, by Count Ostensacken), the Journal of the Boston Society of Natural History, and that of the Board of Agriculture of the State of Ohio.

Mr. Stevens exhibited a number of rare and beautiful Butterflies recently captured by Mr. Wallace in the island of Ternate, including some of the fine species figured by Dr. De Haan, in his great work on the Dutch settlements in the East. Mr. Stevens also mentioned the recent capture, by himself and Dr. Power, of several rare British Beetles, including *Lamophlaeus clematidis*, *Stenolophus elegans*, and *Heterius sesquicornis*.

Mr. Ianson recorded the capture by himself of a new British genus of Ants'-nest Beetles belonging to the family of the Staphylinidae, found in the nest of *Formica fuliginosa*, named *Aloglossa gentilis*.

Mr. Stainton stated that Dr. Herrick Schäffer, of Ratisbonne, had recently informed him of the existence of a small species of Butterfly in the East Indies, which resides in the perfect state in Ants'-nests. It is of dull colours, and has the legs peculiarly constructed for its strange mode of life.

Mr. Westwood considered, from the description of its structure given by Mr. Stainton, that it was most probable that the Butterfly in question would prove to be a species of Dr. Horsfield's genus, *Symetha*, figured in his work on the Lepidopterous insects of Java. A suggestion subsequently confirmed by Mr. Stainton, on the figure being shown to him.

Mr. McLachlan exhibited a variety of the rare Lily Beetle, *Crioceris merdigera*; and Mr. Douglas illustrations of the habits of two species of micro-lepidoptera belonging to the genera *Ornix* and *Tortrix*. He also read some notes on the transformations of a species of *Rhaphidia*, or Snake Fly, the pupa of which he had found in a rotten branch of an Oak tree; also a description of the larva of the rare Beetle, *Trinodes hirtus*, found under the bark of old Oak trees, and which undergoes the pupa state within the shrivelled skin of the larva.

Mr. Baly read the descriptions of a number of new and rare exotic species of Chrysomelidae.

An extract was also read from a letter by Mr. Wallace, recording his capture at Ternate, in New Guinea, of a new and most gorgeous species of *Papilio* (of which he had dispatched specimens to England), as well as a new kind of Bird of Paradise, of great beauty. Mr. Westwood suggested the probability that this supposed new Butterfly would prove to be De Haan's grand species of *Ornithoptera*, of which a unique example exists in the Leyden Museum.

NOTES FROM PARIS.

THE HORTICULTURAL EXHIBITION.

I OBSERVED in my last letter that this Exhibition, though very beautiful, was, in some respects, inferior to the London Flower Shows. But if it is wanting in remarkable examples of skill in the growth of certain classes of plants, it is only fair to state that, with respect to fruit and vegetables, it considerably surpasses what we are accustomed to see in England at the same early season, if not in quality at least in quantity. The principal exhibitor in this division is M. Cremon, of Tarceller, who has a pretty collection of dwarf fruit trees in pots, all of which have a considerable number of fruit. There are several small Vines of

Muscat Blanc, having five and six bunches; then one or two of *Frankenthal*, with three and four bunches, quite ripe and very well grown. Two or three Peach trees in small tubs, have from four to six fruit well swelled and nearly ripe. There are four Apple trees, about two feet high each, having from six to eight fruit; one Apricot, with four fruit almost ripe. In the same collection are a number of cut black Grapes, the sorts are *Muscat Rouge* and *Frankenthal*.

The *Providence* and *Queen Pine Apples*, shown by M. Foret, are well grown and ripened. With these are several young Cherry trees loaded with beautiful ripe fruit. Cherries, by-the-by, are very abundant this year. M. Chantier, gardener to the Duc de Levis, has a nice collection of Melons and white Grapes. Another, belonging to M. Plastier, contains some well-preserved Apples and Pears of last year. These are the *Reinette du Canada* and *St. Germaine*. The same grower has also several dishes of white and black Grapes, Peaches, and Apricots. Some beautiful preserved Pears and Apples are shown by M. Boyer, of the Château de Neuville. There is the *Belle Angevine*, an enormous Pear, which appears to be much grown here. The Apples are the *Reinette du Canada*, the *Reinette Dorée*, and the *Pomme d'Apis Rouge*. The *Reinette du Canada* is one of the most favourite Apples in Paris, and it is in every collection. I have often observed, too, that the French people generally are much more familiar with the names of fruit than we are, especially of Apples and Pears. Any person can tell at sight the names of thirty or forty different varieties, though having nothing to do with a garden. But to return to the Exhibition. I shall pass on to the vegetables, which, however, do not claim much detail.

There is a new variety of Pea, called after the raiser, *Courtois Gerard*, but I do not know its particular merits as a distinct variety. In this collection there is also a new Radish, called *Radis de Madras*, and said to have been introduced by M. Gerard, but he does not say from where; perhaps it is known in England. With this variety it is the pod that forms the edible part. Then there is a singular variety of Lettuce, having its leaves cut and notched like those of the Artichoke; but I am not sure that it will prove equal to the sorts commonly grown. There are some Leeks and Asparagus, which I should think have never been equalled for size. The Leeks are fully three inches and a half in diameter, and the Asparagus nearly two inches. But it is doubtful if they are as good as they are large. There are some samples of *Myatt's Surprise* Strawberries, which are fully three inches in diameter, and the plants are loaded with fruit. One or two seedlings of more moderate dimensions seem to promise well. The *Chasselus Napoléon*, a large and beautiful white Grape which I noticed last year, is well worthy of being mentioned again, and it is the finest variety in this Exhibition. But it is in autumn that we shall have the grand display of fruit; at present there is but little which claims more particular notice. The Exhibition was to close on the 15th, but it will be continued till the end of the month. Very few fresh collections, however, have been added, and some of those that were sent at the beginning have lost much of their early freshness and beauty.

As I lately spent a few days with a friend who lives about fifteen miles from Paris, I had a good opportunity of noticing the state of the crops; and I shall conclude this letter in jotting down the result of my observation. Cereals of all kinds are looking remarkably well, and promise a beautiful harvest. Potatoes are plentiful, and there are no symptoms of disease. The early sorts have been in the markets for several weeks. Grapes in general are likely to be abundant; they are now about the size of swan-shot, and the labourers are now engaged in tying and pruning, or rather "pinching," for the shoots which are removed are merely broken or pinched off. Women are generally employed in this operation, and they are very expert at their work. They are, in some cases, paid at so much a-year according to the extent of the ground. But sometimes they are paid by the week. In tying a vine to its stake, they use two or three straws of a certain length, which are previously prepared. The tying is neat and strong enough, while the manner in which it is performed admits of great rapidity. Nothing can well be more beautiful than a field of luxuriant Vines, either in summer or autumn, but especially to people who come from more northern climates.

With the exception of Plums, garden fruit, in general, is abundant this year, so far as I have seen; and all the accounts which I have noticed are very satisfactory.

The weather at present is warm and clear, but last week it rained every day almost without ceasing, and we have had several hail-storms with a great deal of thunder.—K.

GRAND NATIONAL EXHIBITION OF ROSES.

HANOVER SQUARE ROOMS, LONDON, JUNE 23.

THE ROSES from the home circuit were much larger and more fresh-like than they were last year at this Exhibition; but the Herefordshire Roses from Mr. Cranston were not quite so numerous, and much about the same as last year. The eastern counties' Roses from Colchester, grown by Mr. Cant, were much better than came up last year from the east. The northern Roses were later this year, or, rather, the Exhibition was a week or ten days too early for them; and some from the south-west were the roughest I ever saw exhibited. But, as a whole, the show of Roses was splendid.

The competition for prizes was not nearly so keen and close as last year, Messrs. Paul and Francis being the only large showmen who competed—more than one-half of the Roses came from them, and all the pot Roses as well. Messrs. Paul and Son furnished all the big-pot specimens they could muster; and Mr. Francis was particularly rich and very uniform in small-pot Roses.

Mr. Francis's style of flowering small Rose plants in little pots should be the aim and ambition of every gardener who has to keep up a show-house or conservatory on a moderate scale. It is very far more difficult to flower 100 of such small Roses, as uniform in growth and bloom as a Fancy Geranium, than to manage a score of those splendid bushes, in bushel and two-bushel pots, which we see at the May exhibitions. And suppose ninety-nine persons out of every hundred, who go to see Rose shows, had each of them half a dozen such large pot Roses given to them for nothing, what could they do with them? Therefore, although it is a beautiful sight to see a May Rose Show in pots, the grand secret of cultivating Roses in pots for private use is never to grow a single plant for its flowers beyond the size of your rooms and conservatories. There are drawing-rooms in which two match pairs of the Messrs. Pauls' largest pot Roses would be no more in the way than the first volume of the "Illustrated Bouquet," which is just out; but there are five hundred other drawing-rooms to one, which are just as comfortable, but into which you might just as well introduce an elephant as one of these pots. The best hint at this Rose Show, therefore, because it is as a hundred to one in usefulness, was Mr. Francis's way of blooming scores of Roses in 48 or 32-pots all as one plant in size and in the number of blooms.

The Hanover Square Rooms are much of the same form as St. James's Hall, without the side galleries, and the extent for running out the Exhibition on is also much the same. The orchestra is raised six or seven feet above the floor at one end, and at the opposite end there is a gallery. In front of the orchestra, across the room, stood the Roses from the Messrs. Fraser, Lea Bridge Nursery, and from Mr. Cranston, of Hereford, or near thereto. Then there were two tables the whole length of the room—say, twenty-four or twenty-five yards in length; and on each table was a single row of boxes "round and round,"—that is, a row on each side, and pot Roses in the centre. Messrs. Paul's large specimens were in groups along the centre of one table, with open spaces between them; and Mr. Francis's dwarf plants made a complete Rose-bed along the centre of the second table, and that bed of Roses was edged as it were on each side with the boxes of cut Roses. Under the farthest end gallery was a bank of cut Roses for competition. This bank ran into a lobby to the left, and returned along the whole front side of the room. It was in this long stretch that the Messrs. Paul and Francis competed for the highest prize, each with a collection of 100 kinds—a magnificent sight if you could see it from end to end; but no one could with the crowd, and no one but genuine florists were allowed a private sight. They say the march of crime keeps pace with the march of intellect; and if that be so, florists must be as innocent now as the rest were 200 years back, for the march of intellect has not yet made a flaw in their rules of piracy, or in their acts of jealousies, and their pace is still the same. But get once in among them, and you meet with the utmost kindness and the greatest liberality, as I did that day. Nothing could have been more easy for me than to sit down and draw up a full report from the schedules, which were freely given to me by Mr. Edwards, the acting Secretary; and I owe a score of apologies to the Honorary Secretary, the Rev. S. R. Hole, for the trouble I gave him ancient admittance with the Judges, which was not in his power to grant. I said I would never stoop to report from a schedule; and when the public are admitted I can hardly do anything. The country party know me personally; and if they saw me blocking up the

way taking notes, they would go home and tell that I was nearly as rude as the rest since I came up to London. Besides, there is all the talk about the flower-beds, the colours, the new bedders, the discarded, and the discoveries since last season to be got over in the afternoon: and, if you believe me, when this talk takes a certain turn, I quite forget about the Show, the rest of my notes, and go with the stream. And if I give up the country party, I may as well shut up shop at once.

The great feature of this Rose Show was the excess of hybrid perpetuals over every other section of Roses. The *Cloth of Gold* was there, but *Isabella Grey* was not. *Vicomtesse de Cases* was the next best yellow after *Cloth of Gold*. *Gloire de Dijon* and *Eliza Sauvage* were the next two nearest to yellow. *Général Jacqueminot* (Shakameno) was the highest coloured Rose. *Triomphe des Beaux Arts* is also a splendid crimson. *Souvenir de Leveson Gower* and *Triomphe de l'Exposition* among the largest Roses, and very bright. *Victor Trouillard*, crimson; *Paul Duprey*, ditto; *Triomphe de Paris*, dark crimson, and *Cardinal Patrizzi* are among the best dark Roses; but the Cardinal is treacherous, being a bad grower.

But rather take selections from some of the prize collections. The first prize to Messrs. Paul for 100 kinds included the following, all superior Roses:—*General Castellane*, a splendid pillar crimson Rose; *Dr. Juillard*, a fine rosy purple; *Lafontaine*, very large rosy purple; *Mathurin Regnier*, light, very double, and one of the very best; *Caroline de Sansal*, light, flesh-coloured Rose, very large; *Evêque de Meaux*, very double, violet-crimson, and a very hard bud, denoting that this fine Rose requires the richest soil; *Baronne Prévost*; *Lucre Ramond*, a very fine light Rose in the way of *Madam Rivers*; *Triomphe des Beaux Arts*, aforesaid; *Joan of Arc*, a very fine blush white; *Souvenir de Leveson Gower*, aforesaid; *Louis Peronny*, very large, light Rose; *Madame*, very large, purplish crimson, a fine thing; *Madame Vidot* and *Madam Rivers*, two of the same cast of light flesh; *Lord Palmerston*, a fine-shaped red flower; *Cardinal Patrizzi*, a most beautiful cupped dark Rose; *Madame Pauline Labonte*, a most beautiful salmon-coloured Tea Rose; and *Jules Margottin*, a splendid cherry-coloured Rose.

At one end of these stood a large box of a new bedding Rose from Mr. Standish, of Bagshot. It is named *Eugène Appert*, and will be a rival to *Géant des Batailles*: it is of that breed, more stocky, and a most profuse bloomer.

Mr. Francis's 100 kinds came in at the other end of the Cheshunt rivals, beginning with *Eliza Sauvage*, which was really yellow this time; *Paul Duprey*, fine dark; *Prince Léon*, very fine red crimson; *Triomphe des Beaux Arts*; *Lord Raglan*; *Colonel de Rougement*, a very large pale flower; *Evêque de Meaux*, very double crimson; *La Reine*; *Gustave Couraux*, really a pure purple Rose; *Triomphe de l'Exposition*; *Cloth of Gold*, very good; the old *Boule de Nanteuil*, the best of the old dark summer Roses; *Crested Provence*, very fine; lots of Mosses; *Jaques Lafitte*, ten times better than when it first came out with *Géant des Batailles*, very full, and double reddish crimson; *Duchess of Norfolk*; *Léon des Combats*, a fine dark rose; *Gloire de Dijon* and *Lady Stuart*, a beautiful light Rose.

Mr. Cranston, from Hereford, did not compete; but sent beautiful boxes of *Géant des Batailles*, *Jules Margottin*, *Général Jacqueminot*; Mosses; *Devoniensis*, *Mrs. Rivers*, and *Louis Châir*, a fine pillar Rose, dark red, and so forth.

In collections of 50 kinds, Mr. Tiley, of Bath, was first with one of the freshest lots there, beginning with *Du Petit Thouars*, the well-known Bourbon, *William Griffith*, *Baronne Prévost*, *Souvenir de Leveson Gower*, *Devoniensis* (fine), *Triomphe de Paris*, (very dark), *Général Jacqueminot* (nearly as dark), *Vicomte de Cases* (a ticklish gentleman, done to a T, and beautifully yellow), *Comtesse Cecile de Chabillard* (in the way of *Mrs. Rivers*), *Lord Raglan* (a fine Rose), *Mère de St. Louis* (a fine blush), *Prince Léon* (a fine-shaped crimson), *Auguste Mié*, *Mrs. Bosanquet* (the only instance of it I noticed), the dark *Cardinal Patrizzi* again, *Narcisse*, a nearly-white Tea Rose.

Mr. Cant, of Colchester, was in for a tie with Mr. Tiley; both lots being exquisite. He began with *Prince de la Moskova* as the most noticeable. This Prince is as nearly black as Sambo, and a beautiful Rose it is. *Solfaterra*, fine; *Madame Vidot*, ditto; *Duke of Cambridge*, a fine red Rose; *Emperor Napoléon*, dark; *Charles Lawson*, a large edition of *Baronne Prévost*; *Bacchus*, and a very beautiful Damask Rose called *Madame Stoltz*, nearly white; *Souvenir d'un Ami*; *Victor Trouillard*, a splendid dark Rose; and *Gloire de Dijon*.

Mr. Turner, of Slough, was second in fifties, besides sending lots of contributions:—*William Griffith, Général Jacqueminot, Paul Ricaut, Cardinal Patrizzi, Mathurin Regnier, Géant des Batailles, Souvenir de Leveson Gower, Prince Léon, La Reine, Gloire de Dijon, Duchess of Sutherland, and Duchess of Norfolk* to contrast by the side of her Grace of Sutherland; *General Simpson*, very double carmine; *Madam Mason*, very large; *Gloire de France*, a fine large crimson; *Madame Hector Jacquin*, large rosy flower, shaded with lilac—a fine thing.

Such are the selections from these noted and enterprising growers, and such as these would be my choice if I had gone through all the minor collections, but endless repetitions are what I could never abide; suffice it to say there was not a bad-grown Rose there, and only one lot which could be said to be “a rough-looking lot,” and, strange to say, the florists give that lot an under prize; but a true florist would give a prize to a bed of Tulips, in which the colours would make me jump over the next wall sooner than run the risk of being made a convert to the confusion.

Now, after all is done and said in St. James' Hall, and in these Hanover Square Rooms, I would strongly advise the Rose Shows for the future to be held somewhere out of London—at the Park, or at Kensington, when the Chiswick hive sends the first swarm there; where the pioneers are now looking out for an “improved Neighbour's hive;” where the drones expect to turn “the Doctor” to a queen bee, and where the cells will be formed round, as a florist's fancy,—for a Committee of florists are now “instituted” to gather the materials for the formation of the combs for the Horticultural Society. Better still would the show be in the transept at the Crystal Palace. At all events, *the best room in London is too hot and noisy for a summer show of flowers.*—D. BEATON.

GROWERS FOR SALE.

Class A.—100 varieties. Two Exhibitors.—First, Messrs. Paul and Son, Cheshunt. Second, Mr. E. P. Francis, Hertford.

Class B.—50 varieties. Seven Exhibitors.—First (equal), Mr. Tiley, Bath, and Mr. Cant, Colchester. Second, Mr. Charles Turner, Slough. Third, Mr. E. Hottamby, Tunbridge Wells.

Class C.—24 varieties. Five Exhibitors.—First, Messrs. J. and J. Fraser, Lea Bridge Road. Second, Mr. Laing, Twickenham. Third, Messrs. Veitch and Son, Exeter.

AMATEURS KEEPING A GARDENER.

Class D.—50 varieties. Six Exhibitors.—First, C. M. Worthington, Esq., Cavendish Priory, Reading. Second, Mr. Hollingworth, Maidstone. Third, J. T. Hedgo, Esq., Reed Hall, Colchester. Fourth, Mr. T. Terry, gardener to C. W. G. Puller, Esq., Herts.

Class E.—24 varieties. Ten Exhibitors.—First, Mr. Moffat, gardener to Viscount Maynard, Easter Lodge, Dunmow, Essex. Second, Mr. Thomas Blake, Ware, Herts. Third, J. T. Hedgo, Esq., Reed Hall, Colchester. Fourth, Miss Crawshaw, Caversham Park, Reading.

Class F.—12 varieties. Fifteen Exhibitors.—First, Mr. May, gardener to C. M. Worthington, Esq., Caversham Priory, Reading. Second, Mr. T. Plester, Evesham. Third, Rev. H. Helyar, Pendomer, Eyevoil.

AMATEURS NOT KEEPING A GARDENER.

Class G.—24 varieties. Eight Exhibitors.—First, W. Cant, Esq., Colchester. Second, Mr. Thomas Mallett, Nottingham. Third, Mr. Thomas Walker, Oxford. Fourth, A. Fryer, Esq., Chatteris.

Class H.—12 varieties. Fourteen Exhibitors.—First, W. Cant, Esq., Colchester. Second, Mr. Thomas Walker, Oxford. Third, Mr. Thomas Mallett, Oxford. Fourth, Mr. Thirland, Oxford.

OPEN TO ALL CLASSES.

Class I.—Best Collection. Two Exhibitors.—First, Messrs. Paul and Son, Cheshunt. Second, Mr. E. P. Francis, Hertford.

BRITISH POMOLOGICAL SOCIETY.

A MEETING of the British Pomological Society was held at St. James's Hall, Regent Street, on Thursday the 23rd inst., Robert Hogg, Esq., Vice-President, in the chair.

Rev. THOMAS STANLEY, 28, North Audley Street, Grosvenor Square, was elected a member of the Society.

At this Meeting prizes of one guinea and half a guinea were offered for the best and second best collections of STRAWBERRIES, and a prize of one pound, by Mr. Charles Turner, of Slough, for the best seedling Strawberry.

Of seedlings there were three varieties sent for competition; two by Messrs. Butler and McCulloch, of Covent Garden, and one called *Oscar*, by Mr. Bradley, gardener to W. F. N. Norton, Esq., Elton, near Nottingham. Those of Messrs. Butler and McCulloch were distinguished as No. 1 and No. 2. No. 1 is a small, long, filbert-shaped variety, with rather large and pro-

minent seeds, and of a dark red colour. The flavour was very fair, but nothing remarkable. No. 2 was of larger size, flattened and cockscomb-shaped. This, also, was of good flavour, and considered to bear considerable relation to *Jeyes' Wonderful*, with which it was placed in comparison. Both of these varieties had suffered much from carriage, and were considerably bruised. *Oscar* is a large fruit, ovate, and angular, and sometimes wedge-shaped. The seeds are rather large and deeply imbedded. Skin dark shining red assuming a blackish hue when it is highly ripened. Flesh red throughout, very firm and solid, juicy, and richly flavoured. It ripens four or five days after *Black Prince*. This was considered a variety of first-rate excellence. Its great recommendations are its earliness, the extreme firmness of its flesh, which enables it to bear carriage well, and to preserve its freshness for several days after being gathered, and as being of first-rate flavour among the *Keens' Seedling* race. It was ascertained by comparison to be a superior variety, in these respects, to *Sir Harry*; and the foliage which was exhibited showed that the plant is a robust and healthy grower, while it was stated that it is also an abundant bearer. The members present having each given their opinion, it was pronounced to be a variety highly worthy of cultivation, and was adjudged the prize of ONE POUND. We may state that the fruit received from Mr. Bradley, had been gathered some days, and while the stalks and calyx were quite withered, the fruit remained quite plump and firm, and preserved all its flavour.

Mr. Charles Turner, of Slough, exhibited a very large collection of varieties, among which we observed *Nimrod*, which, when true, is quite distinct from *Eleanor*, with which it was mixed, when first sent out by Messrs. Pince, of Exeter. It is of an ovate shape, and deep red colour. Flesh deep red throughout; but acid and without much flavour. It belongs to *Keens' Seedling* race. *Doubleday's No. 2* is a fine, large fruit, varying from conical to wedge and cockscomb shape. The seeds are small, and not deeply imbedded. It has a close resemblance to *British Queen*, both in colour and flavour, but is not superior to that variety in either respect. *Doubleday's No. 3* is a large, irregular, and deeply furrowed fruit, with a coarse appearance. The skin is bright red. Flesh red throughout, briskly, but not highly flavoured. *Admiral Dundas* is large, conical, and occasionally wedge-shaped. The skin is pale red, and the flesh also pale. This was highly flavoured. *Carolina superba* was very richly flavoured, and more highly coloured than *British Queen* usually is. *Filbert Pine*, large, conical, and handsomely shaped, with large and prominent seeds. Skin pale on the shaded side, but dull purplish-red next the sun. Flesh pale, but with pink-coloured core, firm and solid, and with a rich flavour. This is an excellent Strawberry. *Sir Charles Napier* is very large, cockscomb-shaped, and deeply furrowed. The skin is a pale bright scarlet and very beautiful. Flesh pale, briskly, but not richly flavoured. *Adair* is very similar to *Nimrod*. *Rival Queen* is the same as *Omar Pasha*; and *May Queen* is a small, round, dull-coloured and coarse variety, utterly destitute of flavour.

The prize for the collection was awarded to Mr. Turner, and the thanks of the Meeting were given to Mr. Turner for the very excellent collection he had exhibited, and from which much useful information was obtained.

Mr. Rosher, of Hamilton Terrace, St. John's Wood, exhibited a basket of very fine *British Queens*, grown in his garden at St. John's Wood. They were of large size, most beautifully coloured, and with that rich luscious flavour for which this variety, when well ripened, is alone remarkable.

At the next Meeting of the Society, which is to be held on the 7th July, three prizes will be awarded for the best collection of FIGS; and two prizes for the best collection of MELONS. Two prizes will also be awarded for the best collections of STRAWBERRIES. We trust that all gardeners who are interested in obtaining and advancing pomological knowledge will endeavour, on this occasion, to further the objects of the Society in ascertaining the characters and relative merits of the different varieties of FIGS and MELONS—two kinds of fruit, respecting the varieties of which so little is known.

GERMAN STOCKS.—The *Illustrirte Garten Zeitung* says, that the German seedsmen produce the fine double varieties so well known by growing the plants in the richest soil, watching them, even from infancy, to see that they receive no check to their luxuriance, either through want of water, or from any other cause, until the seed is fully matured.

VARIETIES.

THE BEAVER—BEAVER-STONE.—I took care to make inquiries respecting the process used in preparing the beaver-stone, and found it so extremely simple, that I could not help concluding that the excellence of this article depends entirely on the animal producing it; which is more perfectly developed in the high north, where Nature scatters animal perfumes in place of fragrant flowers, than in lower latitudes. In fact, the preparation of the castoreum consists in nothing more than in dipping the bags the moment they are cut off, when they are about three inches long, and one and a half broad, into warm milk, after which they are dried slowly. Neither the oven nor the sun's rays are resorted to in order to expedite this part of the process; but the bags are hung up in a shady place, where they may dry by the current of fresh air alone. There is hardly any drug which recommends itself to man so powerfully by its impression on the external senses as this. The Ostyaks were acquainted with its virtues from the earliest times; and it was here that they kept a supply of it in every yurt, that the women might recover their strength more quickly after childbirth. In like manner the Kosaks and Russian traders have exalted the beaver-stone into a panacea; for these people, though, in cases of danger they habitually look for safety to religious confidence, are yet inclined to reckon strength of constitution, and whatever is thought calculated to promote it, as further grounds of hope. To the sentence, "God arose, and our enemies were scattered," the Siberians add, very characteristically, the apocryphal interpolation, "and we are free from head-ache." To ensure this most desirable condition, everyone has recourse, at home or on his travels, and with the firmest faith, to two medicines, and only two—viz., beaver-stone, or beaver-efflux, as it is here called, and sal-ammoniac. It is not surprising that men should yield to the instinctive tendency to generalise, and, from the strength of the castoreum, should infer the wonderful virtues of the whole animal, and of all its parts. I saw here, at M. Nijegorodov's, some roundish lumps of fat, which were likewise extracted from the beaver of the Obi, resembling the castoreum bags in size, shape, and colour, but without any smell. They were here called *póchki*, or kidneys; and it was stated that they lie on the breast of the females, immediately under the skin. The yellow fat which forms the mass of these round bodies is covered with a brown skin, through which it sometimes exudes. The *póchki* are not exported; but the Siberians collect them eagerly, because, as they say, gouty swellings disappear rapidly when rubbed with this fat. Another offspring of the sympathetic theory, is the belief that the teeth of the beaver cure the toothache. One of the interesting remarks made by the people of Beresov, with respect to the beaver, was, that it alone, of all the fur animals, undergoes no change of colour in the course of the season. The winter passes over without making any impression upon an animal which then dwells and moves wholly in the water; and it is not unlikely that the comparative comfort and equable temperature enjoyed by the beaver in this latitude conduce to that organic development which renders its produce so valuable. There are always two passages leading from the subterranean dwellings of the beavers of the Obi; the one opens on the steep bank of the stream above the level of the water; the other, so deep under the water as not to be closed in winter by the ice, the usual thickness of which is here about four feet eight inches. All the stories which have been repeated for centuries in European books of natural history respecting the constructive talents of the beaver—the dams which they build—the bars of wood which they cut and shape to their purpose—are all related by the hunters of Beresov in terms so perfectly similar, that it can hardly be doubted that we are here at the first sources of the information. Two assertions, however, made respecting them, were new to me. One was that, among beavers, as with bees and men, there are distinctions of ranks; each chief keeping a number of labourers, the toils of which he oversees and directs, without taking part in them; and again, it was stated, that the contents of the castoreum bags depend on the moon. In regard to the first of these points, my information was, unfortunately, derived only from Russians, and not from Ostyaks, who are unacquainted with any condition of men exempt from labour; and I am, therefore, unable to decide whether the assertion might not have originated in the desire to trace an analogy between the beaver and the human species, or whether it was actually founded on some indulgence allowed among beavers to females, perhaps, and to the young. With respect to the influence of the moon, it is evident that we have nothing to do in this case with varying gravitation, as in the phenomena of the tides, but simply with the changes of light, as

is manifest on a close examination of the statements made, for the two syzygies are said to have opposite effects; so that both Ostyak and Russian hunters maintain that the bags are good for nothing at new moon, whereas they afford a rich prize only at full moon. But there is reason for suspecting that in the long winter nights the advantages of moonlight are enjoyed by the hunter without being felt by the animal.—(*Erman's Travels in Siberia.*)

BLOWING OUT A CANDLE.—There is one small fact in domestic economy which is not generally known, but which is useful, as saving time, trouble, and temper. If the candle be blown out holding it above you, the wick will not smoulder down, and may, therefore, be easily lighted again; but if blown upon downwards, the contrary is the case.—*Scientific Artisan.*

BEE-HIVES IN PORTUGAL.—I stumbled the other day on a collection of bee-hives at Quinta de Graciosa. There were more than forty in a row, all of cork, with a little hole or two cut for the bees to get in and out, and covered with a rude piece of slate. They were a couple of feet high, circular, perhaps a foot in diameter, and surrounded by bees "improving the shining hour." Cork hives are those in common use.—(*Letters of Col. Sir A. Fraser.*)

TO CORRESPONDENTS.

ANTS NOT INJURIOUS TO FRUIT TREES (R. T. B.).—The shoot of the Peach you obligingly sent sustains instead of refuting our statement. That shoot was excessively injured by aphides, and the exudation and sweet secretions they caused were the food the ants came after. Ants, earwigs, and lady-birds all prey upon the aphides.

STOPPING AND CUTTING CHRYSANTHEMUMS (Frenchman).—The large-flowered Chrysanthemums should not be stopped later than the middle of July, in order to obtain fine blooms the same year. If topped later, the shoots will not have time to form buds that will bloom in the open air. Our correspondent, it seems, is desirous to form compact plants. In an open situation in the garden this is not difficult, provided the plants are stopped early enough, and well supplied with water in dry weather. The main cause of the plants becoming rambling, or drawn, is that of being too much crowded and grown under the shade of trees or buildings. Give them plenty of room and a free circulation of air, and the plants will naturally grow stocky and compact. Cuttings, to make plants to flower next year, may be put in as late as the 1st of October; but why drive this operation so late? Days are short then, and nights cold, damp, and long; hence the cuttings are longer in striking, and more liable to become mildewed and damp off. If you have cuttings, put them in about the middle of September; and, with moderate care, they will all root in a fortnight, and may be kept dwarf by nipping off the tops. Or if a hotbed can be made under your frame in February, cuttings may be put in as soon as the heat is moderate; and such plants then raised may, by moderate attention, be formed into fine flowering plants by the blooming season the same year. If, however, you prefer the autumn propagating, by all means adopt that season. You will be certain of excellent plants next year.

BUDDING AND GRAFTING (R. F.).—We have no experience about the value or price of grafting or budding by contract, and we cannot undertake to answer private letters. Mr. Beaton sent us your letter. There is a pile of "stamped" letters on our table already; for it is no breach of etiquette for public writers not to answer or even take notice of private letters. If they did answer them they would have no time for attending to the communications which have to be printed.

HEATING BY TANK A SMALL STOVE (A Subscriber from the First).—A short time ago, a section of a house heated by a tank, with description, was given by Mr. Fish. You will there find directions which will just suit you, to far as we understand your case. Did you have a boiler, we should prefer a small conical one of Roger's, or the amateur's retort of Thompson's, for such a house. But we see no necessity for a fresh boiler, nor yet for water pipes, unless as a connection between the boiler and the tank, until you have tried your present boiler, and if your tank is water-tight. As the lid of your boiler is moveable, the water in it and in the tank must be of the same level—the flow proceeding from near the top, and the return from near the top. On looking at your sketch, however, we perceive the tank occupies only a small narrow space at one side, and that will not be sufficient to give heat to the house. Had your centre slate stage a tank under it, you would have had no difficulty in getting plenty of bottom and top heat. If you had a fresh boiler, we would have pipes or the tank for bottom heat and pipes for top heat; and to do it efficiently, you would want about fifty feet of four-inch pipe for one purpose, and as much for the other, and both to be used separately when desired.

PLANTS FOR A ROCKERY (E. W. B.).—Begin with a Pampas Grass or two at the top or back of the rockery, and keep it four feet from the stonery, the right name for such rockeries. Well, after that, a lot of Cistuses, or rock Roses, should be planted high up, to trail down; also, the trailing Junipers and *Daphne cneorum*, in large patches, with here and there a *Cineraria maritima*, or frosted-silver plant, which does best of all, if much confined at the roots, up high on the spur of a projecting rock. Variegated Thyme, and *Cerastium tomentosum*, to run down on the steepest faces; *Colostea micropphylla* to support a shelving threatening to fall down part of the concern, and as many Campanulas, and wild Heather, in dwarf, close tufts as you can find. Then two or three dozen kinds of Saxifrages, all the hardy Geraniums, Sedums, Houseleeks, and such avowed rock plants as you will find in the Chester nurseries, or in some of the back volumes of THE COTTAGE GARDENER.

DEUTZIA GRACILIS—DIELYTRA SPECTABILIS (C. C. H.).—The two worst plants in the catalogue to do in pots—*Deutzia gracilis* and *Dielytra spectabilis*—the great wonder would be, that you could get a good shoot of bloom from them by that way, unless you were a first-rate gardener. The way to do them, is to cut down the *Dielytra* as soon as it is out of bloom, and to plant it in the open ground, and then to leave it "to itself" till the

tops are an inch out of the ground, in February; then to take it up and pot it for blooming, and when it gets too big, to have it divided, just like old Dahlia roots, at the time of planting out, say early in May. We saw Mr. Eyles' men cutting them down this very season at the Crystal Palace by the hundreds, dividing them and planting them out on raised beds, in long straight rows two feet apart. The *Deutzia gracilis* must be planted out with a ball, and lifted as soon as the flower-buds are the size of a small pin-head, for the frost catches them.

CHICORY CULTURE (Amateur).—We extract the following from the *Cottage Gardeners' Dictionary*.—"Soil and Situation: Like Endive, for the main crops it requires a rich, light soil, and for the earlier sowings a moister one, in every instance having an open situation allotted to it. Sowings must be annually; for, although it is a perennial, yet, after being cut from two or three times, the leaves become bitter and worthless. Sow from the beginning of March, and at intervals, to the end of June, or early in July. Sow moderately thick, in the same manner as Endive, the directions for cultivating which are equally applicable in every other particular. **Cultivation:** When the plants begin to cover the ground, thin to nine inches apart; and those removed plant out at similar distances. If the leaves grow very luxuriant, and shade the roots much, they must be cut off within an inch of the ground. Those grown from sowings antecedent to June, when of nearly full growth (which they arrive at in about four months from the insertion of the seed), must have all their leaves trimmed away, so as not to injure their hearts, and then covered over thick with sand, ashes, or long litter. By this treatment, those fresh leaves which are produced are blanched and crisp, losing their bitterness. Those from the sowings of June and July must, at the end of September, or early in October, be raised, and planted very close, by the dibble, in pots or boxes, having their leaves trimmed as before directed, and their roots shortened, previous to planting. Water must be given moderately in dry weather, until they are established; and shelter, if frosts occur, by a light covering of litter. When well rooted, they may be removed into the cellar, or other place, where the light can be completely excluded from them, to blanch for use as wanted, which change will be effected in six or seven days. Chicory will bear a temperature of 60°, but thrives better in a rather lower one. If the roots are vigorous, they will bear cutting two or three times, after which they are unproductive. To obtain seed, a few plants must be left in the open ground of the June sowing. They bear the severity of winter without protection, and shoot up in the spring, running to seed about May."

DISEASED GRAPES (A Constant Reader of the Cottage Gardener).—Use flowers of sulphur immediately. It is an attack of mildew, and not "canker," as you call it.

INSECTS (Tipton).—The red insect is *Pentatoma festiva*, a rare species of field bug; and the globose dark-coloured one is *Cionus scrophularia*, which ordinarily lives on the Water Betony.

LAWN MOWERS (Sylvanus).—At the competition at Chiswick Gardens, Green's Mower was adjudged the best, and that of Shanks' the next best. Since then we understand great improvements have been made, both in Shanks' and Samuelson's; but as we have had no opportunity of seeing them in competition since, we are unable to say what the present relative merits of the different Machines are.

FUNGUS ON EARTH IN FLOWER POTS (L. R. L.).—Surface the soil with sand. You will find the best dark-coloured Roses for pots named in our report of the Rose Show in a previous page.

VARIOUS (Herts).—We know of no separate work on dragon flies, nor can we recognise your species from description. Camwood is the produce of a tree called *Baphia nitida*, a native of the west coast of Africa. It is used as a red dye. We are not aware that there is any ground for the popular opinion that no one is ever struck with lightning under a Beech tree. The same is said of the Indian Banyan tree, and may be the result of long observation traditionally preserved.

NAMES OF PLANTS (Mrs. S. C. Williams).—The plant sent is the great yellow Moly, or great yellow Garlic, *Allium Moly*. It forms a very pretty bunch in the borders; but, as it dies down shortly after it has flowered, and in order to prevent its being disturbed, it should always be kept labelled. It will then flourish and increase for many years in the same spot. We have a plant which has never been moved for about twelve years.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

JUNE 29th and 30th. NEWCASTLE-ON-TYNE. Sec., Mr. W. R. POPE, 44, Westgate Street.

JULY 1st, 2nd, 4th, and 5th. SHEFFIELD. Sec., Wm. H. DAWSON, Sheffield. Entries close the 15th of June.

JULY 21st. PRESCOT. Sec., Mr. James BEESLEY, Prescott.

AUGUST 27th. HALIFAX. Sec., William IRVINE, Holmfild, Ovenden, near Halifax.

AUGUST 29th, 30th, 31st, and SEPTEMBER 1st. CRYSTAL PALACE. Poultry, Pigeons, and Rabbits. Sec., William Houghton.

SEPTEMBER 22nd. BRIDGNORTH. Sec., Richard TAYLOR, Bridgnorth.

OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. Sec., Geo. GRIFFITHS, 7, St. Swithin Street, Worcester.

N.B.—Secretaries will oblige us by sending early copies of their lists.

ESSEX AGRICULTURAL ASSOCIATION POULTRY SHOW.

THIS was held at Colchester, and afforded another proof that poultry is in its place among the implements connected with agriculture and the other stock of the farm-yard. The prizes

offered are professedly for those breeds most profitable to agriculturists: and hence a classification which restricts the number of entries. After the attendance about the poultry at this Show, we should advise the extension of the prize-list, and we think it would be profitable to the Society.

Dorkings, the table fowl *par excellence*, have four prizes offered to them; and they brought a class of sixteen pens of excellent birds. An idea may be formed of the quality when we say that prize birds of the Crystal Palace were defeated. Mr. Griggs, of Romford, was the first; Mr. Lingwood, of Needham Market, second; and the Rev. J. Baker third. All these were beautiful birds, and unusually large. Mr. Henry Lingwood took both prizes for White Dorkings; and the same gentleman carried off the honours for the best Dorking cock.

Four prizes were offered for *Spanish*. Mr. Bailey, of Kennington, was first both for a pen and the single cock. Mrs. Pattisson took second and third. All these were highly meritorious, and the first prize-pen was fit for any exhibition. Suffolk always sends some good *Game*, and Mr. Matthew, of Stowmarket, is well known. He took the first prizes in three classes, but he was closely run, especially in Single Cocks. Messrs. Rogers, Woodward, and Josselyn, Bognhurst, and Hill, deservedly had prizes awarded to them. In the *Single Cock* class there were three high commendations, and two commendations; and these, because they were deserved, by Messrs. Josselyn, Thomas Hill, Rogers, and Woodward. The Rev. T. L. Fellowes took all the first prizes for *Hamburgs*, both Pencilled and Spangled. Mrs. Pattisson had second for Golden-pencilled, and her birds were good. It cannot fail to be observed, that the same strains were successful in the different classes of each breed; and this must show the utility of these exhibitions, in proving that excellence is not an accident, but that it may be depended upon and attained in poultry as in any other animals. The regular classes now disappear to make way for the varieties, and here Cochins, Brahmas, Polands, Black Hamburgs, Malays, and Sebright Bantams enter the lists. Three prizes were awarded to Messrs. Brooke, Malay; T. P. Edwards, Polands; and H. Wells, for Buff Cochins.

We have never seen better *Turkeys*. Two of the cocks shown weighed 33 lbs. each, and the hens were worthy of them. Messrs. Bognhurst, Formby, and Postans were successful in these classes.

The *Grey Geese* were very good, especially the *Goslings* shown by Mr. Wells. Mr. Postans took second prize.

The *Aylesbury Ducks* were not so good as usual; the best were shown by Messrs. Bognhurst and Thompson. Mr. Punchard's Rouen Ducks were as good as could be. Mr. Bognhurst also showed some excellent *Bucos Ayrean*.

The poultry was exhibited in three tents, opening from one to the other. Placed in Cooke's excellent pens, in two single rows back to back, they appeared to advantage, and allowed ample room for the crowds that surrounded them. The experience acquired during the once-celebrated Colchester Show has not been thrown away, and all the arrangements were perfect. The object of the Society is evidently attained, inasmuch as the Dorking and Game classes would have been a credit, and some of the pens probably successful at any Show. These are the breeds most encouraged as farm poultry. We cannot, however, help thinking that a separate class for Cochins should be made in Essex, celebrated for Mr. Sturgeon's breed, and close to Suffolk, Mr. Punchard's county. We also believe that this breed may safely be called a farmer's fowl, inasmuch as it is unquestionably one of the best winter layers, and very valuable as early sitters. We throw out these suggestions, but we are aware that, when the management includes Messrs. Fisher Hobbs, Cooke, Warwick, and others, neither zeal nor ability will be wanting.

Mr. Bailly was the Judge.

A WORD FOR MALAY FOWLS.

THE period being now arrived when many of our Poultry-Show Committees are about to re-arrange their prize lists, I venture to intrude a few remarks upon their attention, relative to a class of poultry, that have, I believe, hitherto scarcely received the encouragement they deserved,—I mean the Malays. I am decidedly of opinion there is not among our larger varieties of poultry any kind of fowls so desirable to "cross" (simply for farm purposes), as the Malay. Among other good qualities may be mentioned, constitutions the most hardy; flesh of ex-

cellent flavour, and in great quantity—so much so, indeed, that few persons who have not seen these birds when dressed ready for cooking would accredit how plump and well-developed they really are, simply from inspecting such birds at a poultry exhibition. It is only when taken in hand that the extraordinary substance of these fowls about the breasts, wings, and merry-thoughts can be ascertained by the uninitiated in such matters. By judicious crossing, however, with this breed, no doubt better table fowls may be produced than even the Malays themselves. The highest and best-flavoured cross breed will be from Game and Malay. The next, in point of quality of flesh, will arise from crossing the Golden Hamburgh and Malay (these latter will also prove excellent laying fowls, and excessively hardy). With the Grey Dorkings, too, a most useful product is obtained. Experience proves, however, that cross-bred chickens from the Malay and the Black Spanish are the very opposite of satisfactory. These lay indifferently, and the chickens are ill-shaped birds for cooking: besides which, they are an insipid fowl. For such reasons it is waste of time and trouble to cross them. From the consideration only of utility, I will next proceed to notice how much of late years the number of entries has improved in the classes for Malays, and that, too, combined with great advancement towards perfection of character. Let any amateurs who have closely inspected the Malays at the late Birmingham Show, the Hereford, Beverley, or Barnstaple Exhibitions, and I think they will quite agree with me the advancement in this class has been most extreme and satisfactory.

It is needless to say Committees cannot give valuable premiums where entries are limited; silver cups and first prizes of several pounds value, must ensure a fair amount of competition, otherwise the funds available will be unduly entrenched upon. This was, I believe, one and the chief cause why Malays have been frequently expunged from prize lists at Poultry Shows. I am exceedingly glad to find, however, that such complaint cannot be longer fairly urged. The breed is a most useful one, and even to novices, who attend exhibitions simply as casual visitors, Malays are never passed over unheeded; therefore, they become not only subjects of remarks, but attraction; consequently I hope no apology is needed for my thus urging a word in favour of Malays.—EDWARD HEWITT.

HENS EATING THEIR OWN EGGS — PRICE OF HONEY.

If "S. H." will give his hens a piece of raw meat about once a-week to peck at, it will effectually prevent this propensity. I have tried it and found it answer.

If "F. H." will send his honey, in glasses, to Messrs. Fortnum and Mason, Piccadilly, they will give him 1s. 6d. per lb. for it, but it must be perfectly clear and free from bee-bread, &c.—J. R.

ON BEES USING OLD WAX.

I MADE some remarks in the last volume on bees repairing their combs with broken remains of old wax. To which "B. & W." observes, at page 371, "It remains to be proved that bees make use of the broken remains of wax." If he will give his address, I can send him a piece of a new comb made of old wax, which I lately took out of a hive in which a fresh swarm had been only one night. The piece of comb is the same colour as old ones, which shows that the bees did not alter, or refine, the materials. This reminds me of "B. & W.'s" remarks at page 143 of the present volume, that I stated that "bees import wax as a ready-prepared substance into their hives," whereas I distinctly said, at page 108, "more probably they collect wax from plants, and refine it in their stomachs by a process impossible to explain." With regard to my "seeking to father this new theory about beeswax on Mr. Taylor," and "B. & W.'s" extracts from the last edition of that writer's book, I refer him either to the first or second edition, in which Mr. Taylor speaks of bees, at the time of comb-building, frequenting laurels in search of materials to form them. I am speaking from memory, and cannot give his words. However, I have to refresh his own memory, in reference to his observations, in No. 559, connected with this subject, of having "no recollection of ever having had correspondence with Mr. Wighton on any subject whatever." It is now some years back since I noticed his book in the *Norwich Mercury*, which led to a discussion between us on his statements respecting the silly notion of the

sex of bees being changed by food or *royal jelly*, ventilation or Nutt's theory, which Mr. Taylor advocated. I replied in a rather long article on the old and new systems of bee-keeping. To that Mr. Taylor curtly said, that I advocated the barbarous plan of destroying bees. The truth of this may be seen by the following extract:—"Having thus placed the two systems in a fair point of view, as to profit, I wish it to be understood, that I most heartily concur in the now general feeling against the practice of destroying bees by suffocation, provided the means taken to deprive the industrious collectors of their store, be not injurious to them in the main."

I now pass to Gundlach being "an eminent German apiarian." This refers to "A DEVONSHIRE BEE-KEEPER," who observed, however, that his views on the subject in discussion agreed with "B. & W.," a part of which was, that bees collect pollen when flowers contain no honey. Sometimes old Stocks die off in May, as they did this season, leaving ample supply of pollen, which is generally the case at other times. But as I mentioned in my last paper, that the same state of weather which is favourable for flowers producing pollen is equally so for honey, also for the insects being abroad. I may note, that bees never collect pollen alone, though, of course, they often do honey. That curious process is little known; however, when the insects suck with their proboscis, they also brush off pollen with their fore feet, and retain it amongst the hairs of their hinder thighs.

When I said, "Were I to write scientifically, perhaps I might be less understood." That, of course, did not apply to an amateur apiarian who wrote thus:—"I much wonder at the hardihood which sets up to be a teacher of others in matters which are evidently *res incognita* to the teacher." This is not the first time I have been taunted by writers under disguised signatures for having exposed false theories and exaggerated statements of produce from bees, for which treatment I care but little, while I have the confidence of our best apiarians, such as Dr. Dunbar, Dr. Bevan, Mr. Golding, and others, who always affix their real signatures to their replies to—J. WIGHTON.

OUR LETTER BOX.

THE BEVERLEY AND EAST RIDING OF YORKSHIRE POULTRY EXHIBITION was carried on by a Committee consisting of seven Members, an Honorary Treasurer, and an Honorary Secretary; and not by "the sole management of Messrs. Boulton and Calvert," as incorrectly stated in your report of the Exhibition on the 7th inst. I am desired by the Committee to make the above alteration.—FRAS. CALVERT, Surgeon, Hon. Sec.

BATH AND WEST OF ENGLAND POULTRY SHOW.—IN THE COTTAGE GARDENER of the 14th inst. you report—"In Buff Cochins, to the celebrated pen of Mr. Tomlinson, of Birmingham, was awarded the cup. We very much doubt the policy of Mr. Tomlinson in exhibiting so very frequently his first-prize pen." If you refer to the birds I took the cups with at the Birmingham and Liverpool last Shows, I beg leave to inform you that they have not been exhibited until the Bath and West of England Show since they were shown at Preston in February last. What I have exhibited at other Shows since Preston have been quite different birds.—HENRY TOMLINSON.

ROUP (W. G. Cock).—Wash the head once or twice daily with tepid water, and give one grain of sulphate of copper daily, mixed in oatmeal mashed with ale. Separate the infected fowl from the others; give it only soft food, but an unlimited supply of grass, lettuces, and other greens. If not better in a week, kill it.

SWARMS UNITING SPONTANEOUSLY (A Subscriber).—There is nothing remarkable in a well-peopled apiary, when two or more small swarms, issuing at the same time, unite and settle together; an evident advantage, as second and third flights of bees are rarely of much value bived separately. Your case, however, is not altogether quite so easily explained, the three families having commenced work as distinct communities. It is conceivable that Nos. 1 and 2 might have proceeded from the same original stock; for the interval between a second and a third swarm is often very small. Moreover, the queens accompanying all issues after the first are necessarily young ones, and unimpregnated. Under such circumstances these would have comparatively little consideration, and no brood could be possible in the hive, so that the usual impulses of the bees would be weak. In this position of affairs it is much to be wondered at if the new associations are scarcely strong enough to outweigh older ones, especially in hives perhaps placed in close proximity? Be this as it may, there is no cause for regret that you are now in possession of a single strong colony, instead of three nearly valueless small ones.

LONDON MARKETS.—JUNE 27.

POULTRY.

The supply of poultry has been larger this week, and the trade has been dull. Prices were hardly maintained.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls.....	5	6 to 6	Turkeys.....	0	0 to 0
Smaller ditto.....	4	0 „ 4	Pigeons.....	0	8 „ 0
Chickens.....	2	3 „ 3	Guinea Fowls.....	0	0 „ 0
Geese.....	6	0 „ 6	Rabbits.....	1	4 „ 1
Ducklings.....	3	0 „ 3	Wild ditto.....	0	8 „ 0

WEEKLY CALENDAR.

Day of M th	Day of Week.	JULY 5—11, 1859.	WEATHER NEAR LONDON IN 1858.					Sun Rises.	Sun Sets.	Moon R. and S.	Moon's Age.	Clock bef. Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.							
5	Tu	Jasminum Azoricum.	29.730—29.722	70—47	S.W.	.04	51 af 3	17 af 8	40 a 10	5	4	10	186
6	W	Salpiglossis.	29.673—29.575	73—39	S.W.	—	52 3	16 8	52 10	6	4	20	187
7	Th	Salvia fulgens.	29.650—29.619	75—45	N.	.05	53 3	16 8	7 11	7	4	30	188
8	F	Veronica decussata.	30.682—29.500	72—46	S.W.	.06	54 3	15 8	23 11	8	4	40	189
9	S	Tylophora grandiflora.	29.842—29.807	70—47	N.	.82	55 3	14 8	45 11	9	4	49	190
10	SUN	3 SUNDAY AFTER TRINITY.	29.929—29.806	64—54	N.W.	.08	56 3	14 8	morn.	10	4	58	191
11	M	Tweedia floribunda.	30.091—30.042	79—42	W.	—	57 3	13 8	14 0	11	5	6	192

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 74.8° and 51.5°, respectively. The greatest heat, 97°, occurred on the 5th, in 1852; and the lowest cold, 37°, on the 9th, in 1856. During the period 129 days were fine, and on 95 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

ACHIMENES.—They delight in a steady, moist heat; to be shaded in the middle of hot days, to prevent the sun from scorching the foliage; and never to be watered overhead.

CACTI.—Remove them to a dry, airy place as soon as they have finished their growth.

COCKSCOMBS.—They can be grown with strong, short stems, and very large heads, if they are allowed to remain in small pots until the flowers are formed, then potted in large pots in a compost of one-half rich loam, one-fourth leaf mould, and one-fourth sand, and supplied with as much liquid manure and moist heat as possible.

FUCHSIAS.—As the plants progress in growth give them plenty of air and moisture, occasionally moistening the paths, walls, and stages with clear manure water, and syringe the plants both morning and evening overhead.

GLOBE AMARANTHUS.—To be potted into 48-sized pots, in which they will flower in a soil composed of peat, loam, and leaf mould, or rotten dung. They should be allowed to stand near the glass, and be subjected to a moist heat of not less than 75°.

HEATHS.—If mildew appears, dust them with flowers of sulphur. When watering, give them a good soaking, so that every part of the ball is thoroughly wet, and then withhold further supply until it is again completely dry.

JAPAN LILIES.—As they are succulent in growth, keep them well and liberally supplied with water. The flower-stems to be properly staked, so as to keep them in due bounds, and also to assist in presenting a large mass of flowers to the eye at once.

PELARGONIUMS.—If the plants have been exposed to the open air, as advised in a previous calendar, they will now be fit to cut down. After the plants are cut down, place them in a shady place until the most forward young shoots are one inch long; then shake them out, and repot into small pots, using sandy loam and peat only, and placing them in a close, cold frame until they begin to grow again; after which freely expose them to the weather until heavy rains in autumn, or the approach of frost, renders it necessary to house them for the winter.

STOVE AND ORCHID-HOUSE.

Cleanliness is indispensable amongst the Orchids, use a sponge to remove filth from the leaves. See that no plants are neglected in standing in corners or behind large plants; arrange and re-arrange frequently, as it tends both to promote the healthy growth of the plants and a pleasing variety in the house.

FORCING-HOUSES.

CUCUMBERS.—Although we have lately had fine solar heat, it is advisable to keep up a brisk, regular bottom as well as top heat. Strike cuttings of choice sorts for winter bearing.

MELONS.—The same as advised for Cucumbers, as they

both delight in plenty of heat to keep them healthy and in regular bearing. Give them good soakings of weak manure water occasionally, and shut up early on all fine days, sprinkling the sides of the pits or frames, and the plants at times overhead. When watering the plants never allow any to fall on the main stem. If gum, or canker, appears, apply lime to the parts affected. Old plants cut back should be stimulated to grow freely.

PEACHES.—Any tendency to premature decay in the leaves of those from which the fruit has been all gathered to be arrested by liberal waterings at the roots and by syringings.

PINES.—Keep up the temperature from 90° to 95° by day and from 70° to 75° by night, with plenty of moisture among the growing plants and swelling fruit. Shift the successions as the roots fill the pots.

VINES.—Uncover the house, or give all the air possible night and day as soon as the Grapes are gathered, unless the wood is not fully ripened, in that case the house should be closed in the afternoon at a good heat. Stop the laterals on the later Vines, thin and tie up the bunches, and maintain a steady, moist temperature, with plenty of air, but do not syringe the bunches.

WILLIAM KEANE.

BLOOMING THE DOUBLE-YELLOW ROSE.

WATERING—DOUBLE FLOWERS—PROPAGATING

DOUBLE ROCKETS.

WE shall never tire of the theme. Every season brings out something else about Roses. At each Rose gathering the conversations of Rose amateurs with practical growers, as nurserymen and gardeners, are like Rose-suckers—the best of the sap flows that way; and a beginner in culture would prick up his ears at such talk, and believe every drop of that sap was “organised,” as they say when that sap is united with the solid parts. Then, if I could tell a quarter of what I had heard in the Hanover Square Rooms the other day, who could count all the pricked ears? But, having heard that side of the story, and missed the Miss *Isabella Grey*, the American beauty from the “Southron” States, and the old yellow Rose, which is as good as she, if we could get the goodness out of them—and why not? The reason is plain enough about *Isabella*. She is not yet sufficiently rooted in our soils and customs, and, like other beauties, she is too much over-worked in the drudgeries incident to the “bringing out” of such young ladies into our fashionable world; therefore, there is every hope that she will be as she has been reported to be in her earlier days—a perfect beauty, and as sweet as a Rose or a tea-caddy. Not so, however, the oldest of all our Roses, the “double yellow,” notorious for refusing to expand its flower-buds. Two hundred years since it was just the same, and had the same character; but they had a way of managing to bloom it then which has been forgotten, or all but lost. Something of this ancient practice was mentioned within the last ten years, but I forgot where; and the very last

experiment I made at Shrubland Park was this very plan, but it was only half finished when I left. It is strange if I have not mentioned it somewhere in *THE COTTAGE GARDENER*, but I forgot whether I did or not.

Samuel Gilbert was allowed to have been the most practical and the best authority for Roses among the men of his time; and in his "Vade Mecum" he tells of the way to flower the double-yellow Rose to absolute perfection. I shall first give his plan in his own words, and then my own experiment, as far as it went. First of all, however, I must apologise for keeping this old book so long; but there are several passages yet which I wish to work in as the time comes round. "*Rosa lutea flore pleno*, the double-yellow Rose, smaller shoots and leaves, of a paler yellowish-green than the single kind; the flowers very thick and double. Its glory consists in its form and colour." He mentions two other inferior varieties of it, and the single yellow; and after saying that worked Roses were not so good, or so thrifty to bear as on their own roots, he goes on to say—"The double-yellow bears not so well when thus natural [that is, on its own roots], nor in the sun as other Roses, but must be placed in the shade; and for its better bearing and fairest flowers, first, in the stock of a Frankfort Rose [as Gilbert's father-in-law, Mr. Rea, well advised] put in the bud of a single-yellow Rose near the ground, which will quickly shoot to a good length. About a foot higher in that sprout put on to it the bud of a double-yellow Rose, the best kind, which, growing, keep suckers from the root [as in all other Roses inoculated], and rub off all buds but of that kind desired. When big enough to bear, the preceding winter prune it very near, cutting off all the small shoots, and only leave the bigger, cutting off the tops of them also as far as they are small. In the spring when it buds for leaves, rub off the smallest of them [this is as our disbudding], and when it buds for flowers, if too many, let the smallest be wiped off, leaving so many of the fairest as you think the strength of the tree may bring to perfection, which should be a standard then up to a wall, and rather shaded than in too much heat of the sun, and in dry weather sometimes watered; by which means you may expect fair and beautiful flowers, such that will recompense you in their propagation."

Now, is that not a most remarkable passage on the practice of the Rose grower two hundred years back? for it is just so long since Gilbert's father-in-law acted thus. Let the Messrs. Rivers, Paul, Lane, Francis, Cranston, Tiley and Turner unite, and see if they can suggest a better mode for the management of any Brier Rose whatever. Let even *THE COTTAGE GARDENER* attempt the task, and my word for it, Gilbert was a Rose grower to the backbone, and would bloom *Isabella Grey* to perfection.

It was only in 1850, or 1851, that it was thought a tremendous novelty and innovation for *THE COTTAGE GARDENER* to recommend and describe the summer pruning in July of all the Hybrid, Chinese, and other Roses of their stamp. Yet will you believe it, I now find that that was the common practice of Gilbert and his father-in-law? but they "sheared" their plants after they went out of bloom, and pruned them in winter and spring. "Shearing off" the young wood at the end of spring, "for retarding the blowing," was also a common practice then.

The first question is, What is the Rose here called the *Frankfort* Rose, which seems to have been the *Manetti* Stock of Gilbert's time? I think I know that Rose; but you had better take Gilbert's own description of it, if you mean to try to bloom the old double-yellow, and keep to the letter of his plan. "*Rosa Francofurtensis*, the Frankfort Rose, hath the button [fructification] under it bigger than any other, the flowers thick and double, of a bluish-red colour, and sweet scent, but seldom opens fair, but curled and crumpled." That is the Stock to

work the single-yellow Rose on first, and the double-yellow on that, or double-worked as we say.

When we have a stock for any particular purpose, either for flowers or fruits, ten to one if all the kinds will "take" on it, as we say; in that case, all the kinds which did not take on the particular stock are debarred from the "purpose." Here another move takes place. Some kind, on the other hand, does better on this stock than on the wilding, or crab, or whatever the original may have been; and this bettermost graft is used extensively in the first grafting or budding. The shy kinds are worked on the bettermost, so that there are three distinct parts in such worked plants; first, the stock, the bottom part, then the union stock, and then the head. What is the best "union" for the double-yellow Rose? Gilbert used the single yellow, which he describes as growing "as high as the damask, the young shoots full of small, hairy prickles, of a dark-reddish colour, small leaves, single flowers, but five leaves [petals] a-piece, of a pale-yellow colour, being naturally a wild Rose." Is that the yellow Austrian, or what?

The union Rose which I worked for my experiment was the *Persian Yellow*, the second best yellow Brier we know of. The old double yellow itself being still the first and fairest yellow Brier in the world. My stock was the common *Boursault*, because it grew the best on the chalk; but being such a spawner from the roots, the moment it is checked in growth it is not fit for stocks at all. But, indeed, any of the dwarf-Rose stocks which are now in use will do for the double-yellow Brier just as well as the *Frankfort*, or *Manetti*, and the single *Austrian Brier* will make a capital union. See that neither the stock nor union has a bud that will ever start above ground. I have no faith whatever in "rubbing off," and "pulling" suckers; not but the practice would do, but Argus himself could not see to all his Roses, if he were a gardener in these days; and, if he were an amateur, he would be thankful for being relieved from any unnecessary call upon his time; and that it may be unnecessary to look after suckers from properly prepared stocks we all ought to know it to be quite true. But I incline to the belief that the single-yellow Brier of Gilbert is lost, and that it was the parent of the double one we now want to bloom freely, for he describes the "*Rosa Austriaca flore Phœnicie* in all parts like the last [the single yellow]; the chiefest difference in the colour of the flowers, the inside of the leaves [petals] of a fine scarlet, and the outside of a pale brimstone colour."

For watering Roses and all manner of plants there is nothing better yet than old Gilbert's plan:—"Use not well-water for tender plants, for it is so strained through the earth, or rather barren sands or rocks, and for want of the sun so chill and cold, that, having no nourishment—rather the contrary—doth more hurt than good. Rivers that run quick and long on sharp gravel are little better; but if you are forced to use such, let it stand some time in tubs in the sun mixed with dung. Let the quantity and quality of the dung mixed with the water be according to the nature of the plants [hear]. If your plants be great growers and require heat, then put horse-dung in your water. If your water be bad, then put dung into it to help it; let it stand in the sun and open air uncovered. If your plants be fine and tender, then put sheep or cow-dung, deer or asses' dung, into the water. The worse the ground, and the more barren, be sure to put in the more dung. Take care you water no plants with standing stinking ditch water; for sweet water [this liquid manure] not too clear, and fresh mould, is as proper for tender plants as sweet and good food, warm and clean lodging, for tender and fine-bred persons." Rain water and river water, into which the drainage of towns runs, and large ponds exposed to the sun, he also dilates on and recommends. "In summer, or all warm seasons, the evening is the best for watering; because the water will have time to sink into the earth and the plants

attract it before the sun heat exhales it; but in winter, or cold weather, the morning is the most proper time, that the superfluous moisture may be evaporated ere the cold nights overtake you, and chill, perhaps kill, a tender plant." To water by "filtration" is a most excellent system in summer, and will, probably, be quite new to some thousands of our readers:—"A plant that delights in moisture, or a drooping plant that you think water will preserve, may be watered by filtration—i. e. set an earthen or wooden vessel full of water on a brick near your plant, that all the water may be higher than the earth. Wet a thick woollen list. Put one end of it, with a stone or bit of lead, into the water, that it may keep to the bottom. Lay the other end on the ground near the root of your plant, and the water will distil out of the bowl, or pot, through the list; because that part of it out of the water hangs lower than that within." And that is watering by filtration; which was also a common practice in my younger days for some rockwork plants, for the large scarlet Lobelias, and for a great number of mothers of crossed flowers. While they are bearing the seeds a bit of worsted thread will do.

In 1832 I saw a large common watering-pot by the side of a plant, with a hole near the bottom not bigger than the point of a pin could enter; and that small hole drained the pot in twenty-four or thirty hours, I forget which; and the pot was filled daily for months. I forget the plant, but it was in a lovely garden belonging to a worthy clergyman near Maidenhead—the Rev. Mr. Whately; and Mr. Dods, sen., the father of Sir J. Cathcart's gardener, was with me at the time. I have often thought how much labour might be saved to amateurs by some such slight and effectual contrivances as these; but I would not encourage anything that would defeat the effect of plants or plant-beds. Every plan of the kind should be so contrived as to be entirely out of sight; but there is not the slightest difficulty in supplying a constant and a certain quantity of water to any plant in the garden every day and night throughout the summer, or to a certain bed, or to all the beds, and nothing of the arrangement to be seen.

But, was there any philosophy in flowers and gardening in olden times? That there was, and the best sort of philosophy—as, for instance, in getting double flowers and improved races, Gilbert's "Vade Mecum" is just on a perfect level with Lindley's "Theory of Horticulture" in that one branch. "Experience gives us this truth, that such flowers as differ in number of leaves [petals], in shape, in colours, the seeds of such will produce flowers much different from the ordinary kind of flowers; a particular flower among many others of one plant shall bring more double ones than twenty others that are not qualified as it:" and he instances the Stock Gilliflower, our own favourite example for explaining how double flowers are got from the seeds of such flowers as have more than four petals—the common number. But, "if you be envious, as florists ought to be, you may observe the same rule in several other flowers that have no stamens in the middle—as Auriculas, Primroses, Campions, Wallflowers, &c. When you find one or more leaves [petals] than your ordinary number, you may conclude *their nature hath set one step forward in altering from the ordinary kind.*" Exactly the same explanation as physiology offers at the present day. "There a lover of plants should be diligent; and whensoever you see your mistress Nature step out of door, wait upon her to her journey's end, for 'tis on the diligent she bestows her favours. Those flowers, also, which bear seeds when double as the Gilliflower [Carnations]; Africans, &c. [Marygolds]; sowing the seeds of such double flowers, they will bring you more and better flowers a hundred to one than single ones. Gilliflowers [Carnations], have, also, their sign which will bear seed and which will not. Those that will bring seed have their horns in the middle of the flower." The horns are the divisions of the style, or female part of the flower, and

the quotation settles the doubt about what the true Gilliflower really was. The true Gilly, or Gilliflower, is the Carnation; the Queen's Gilliflowers are the "*Hesperis Viola Matronalis*, or Dame's Violet; or our Rocket, double-white, double-purple, and double-striped, being great favourites in Gilbert's time; and the Stock Gilliflower is the common Stock, or Ten-week Stock, of the present day; and these were all the Gilliflowers, or July-flowers as Gilbert indifferently calls them.

Gilbert says, that these double Rockets should be propagated in the spring, after reserving some of the youngest and weakest of the plants of the previous summer from throwing up their flower-stalks. Very probably the best plan in all our books for propagating double Rockets. Propagate them under hand-glasses in April, from slips rising in a tuft from the crown of the old roots; and when the plants "throw up" for bloom, stop a few of them, the weakest, to provide spring cuttings next year. "The double-striped Queen's Gilliflower is the same as the double-purple, but that the flowers are finely striped with white, and most esteemed." They are "easily raised from any slip or branch, which, set in the ground at spring, shaded and watered, will grow; but neglect not to nip off the buds [of your under-set plants] as soon as they appear for flowers, otherwise they will blow and assuredly die." All the italics are mine, and this last is the most curious thing I have yet met with in an old author. You see he does not mean to stop the "under-set plants" by nipping off the whole flower-stalk at once, only the flower-buds on the stalk as fast as they appear; and you may depend on it, that Gilbert knew that to be a better way for those particular Rockets than by a less effort to get rid of the buds and stalks all at once. Some people find no difficulty with double Rockets, and some can never do them well, but they are of the class which is fastidious about soils. Others, again, can never propagate a double Rocket, and some there are who propagate them as fast as Bachelor's Buttons. Those who succeed need no rival teaching; and those that would if they could will be glad to try Gilbert's plan. I think myself it is the very best after all, and if we could but bloom the old double-yellow Rose itself only out of Gilbert's "Vade Mecum;" and I have a great faith in that plan also. The rev. gentleman who lent me the book from a distance will excuse me for having kept it so long.

D. BEATON.

PROFESSIONAL ECONOMICS.

POSITION AND PROSPECTS OF GARDENERS.

THAT gardening, both as a science and an art, is rising to its culminating point the pages of our current literature, and the exhibition-tables of our metropolitan and country horticultural societies, sufficiently attest. With the exception, however, of some striking instances—as in our Paxtons and Flemings—we look in vain for the manifestation of general practical sympathy with the practisers of an art, who, by their intelligence, energy, perseverance, and refined taste, have congregated the highest, the noblest, and the most beautiful in the land, to gaze with admiration upon the results of their unweary skill. We fear that, as a whole just now, the workers in gardening are much in the same position as has often been exemplified at times in the case of great improvements in arts and manufactures, where the capitalist, and the public in general, reaped advantage, even to the detriment, at least for a time, of the workmen employed.

It is perfectly true that if honeyed words and commendatory phrases on public occasions would impart honour and domestic comfort, then the gardener must be the happiest and most comfortable man living. At such times we find the highest in rank, the most renowned in science, the most successful in literature, so enthusiastic in their praises of gardening as only to be exceeded in

the respect and approbation which are professed for the delvers and the diggers, that we can hardly but be surprised, first, that such applauders do not try a good spell at the spade for their own comfort; and secondly, to find that the objects of such general approval should so often have to contend with discomfort, disappointment, and penury.

So far is this fashionable enthusiasm carried, that a great assemblage of gardeners were told the other day, that the only charity amongst us,—the Benevolent Institution, true charity in deeds, being just Benevolence married to its lovely cousin Beneficence,—ought not to be called a *charity* at all; and though not expressly stated, yet somehow we were left to infer the conclusion, that the gardener in old age and in affliction had a *right* to such support; and, of course, wherever there is the right to demand, there can be neither charity nor benevolence in giving. Were this really the case, the future might be contemplated without great apprehensions of misfortune, whatever the desirabilities and unpleasantness of the present. Now, I have no desire to say one word about the constitution of the Benevolent, by which it has been attempted to join in one railway train those who, from somewhat selfish prudential motives, subscribe in the hopes of getting for themselves, or friends, a return similar to what they would expect from a benefit club or a government annuity, but with superior advantages; and those who from purely unselfish motives submit to self-sacrifices,—and very many gardeners do so,—in order that they may help those poorer and worse off than themselves; but I have a desire, as a gardener, as a well-wisher to human happiness—as one who would, if he could, prevent the unwary entering upon a profession without duly counting the cost of success. I do wish to direct prominent attention to what I believe to be facts, that amid all these fine-spoken compliments, for which, of course, we are grateful, there are less chance for permanent employment, less chance of competent due remuneration for service, and less likelihood of comfort and due respect in a situation, than there were ten or twenty years ago. In this, of course, I may be mistaken, and would gladly be in error; but I cannot shut my ears to the similar testimony of many gardeners and nurserymen, nor shut my eyes to evidences, such as the still great, if not increasing, number of places in which the gardener must know nothing of the associations of a house and home he can call his own—in which all he can practically know of happy unions must be concentrated in marriages among his favourite flowers; the many places in which the remuneration is so low, that it is next to impossible a man can keep himself respectably, and prudently provide at all for the future, the gentility and the pleasure of the work being considered, seemingly by some employers, as almost sufficient payment; the great numbers in our metropolitan and country nurseries waiting long and long, and spending their little previous savings, with deferred hopes, expecting and expecting, ere long, to get good places, and some of these who had made themselves a bright name in successful gardening; and, again, the very many who, after their patience has become exhausted, are entering upon other work and occupations at a disadvantage, or are emigrating to other climes, that there they may possibly find that employment for their energy and skill which they could not obtain in their native land.

Why do I state such things? Just that they may be generally known, as the first step to the remedy; and also that youths who fancy gardening, and parents who wish a son to engage in it, may have an opportunity of prudently looking upon the dark as well as the bright side of the picture.

What has produced this state of things? The causes are various; but the principal one is the well-known fact, that the ever-increasing supply of gardeners is out of all proportion with the increasing, but still limited, demand. We are just as completely under the control of the

commercial principle of demand and supply as a bar of iron or a bag of cotton. In theory, masters and servants are relatively dependent on each other—practically, they are not so, because there are so many more gardeners wanting places than there are masters needing their services. Let servants only become searceer than masters, and they will, as a matter of course, command a higher value. True, instances will always be found of intelligent, far-seeing employers (not speaking of the benevolent, who must have those about them seemingly comfortable) who will give good wages, and increase these before they lose a faithful, valuable servant; and some of such employers have condescended to tell me their well-paid gardeners were far cheaper to them in reality than the under-paid ones of some of their neighbours. Of this there can be no manner of doubt as a general fact; but such examples, however cheering, never form a rule. The mercantile principle of buying in the cheapest market is brought into too general operation. In this case men forget that what is low-priced is often anything but cheap. Gentlemen shrewd enough to distinguish (and pay accordingly) the qualities of different bags of cotton, bars of iron, varieties of ploughs, sorts of manures, breeds of flocks, studs of horses, &c., seem at times to look upon a gardener as a sort of metal with one monotonous ring, or an unvarying and unvaried human machine. “That is my price. I never give more. I can get plenty at that money.” And a good gardener will sometimes, from necessity, accept it until he can get something better, or a gardener in name will take it, and get as much as he is worth; and then these shrewd people are astonished that they have so much trouble with their gardeners, and obtain so little profit or pleasure from their garden.

Though holding that intelligence and persevering energy and attention to minutiae are essential to great success in gardening, I by no means consider that all who work in a garden, or are even called gardeners, ought to be cast in the same mould, or be possessed of equal talents and practical skill. Many of the subscribers to this work are gentlemen who are, properly speaking, their own gardeners. By their great general intelligence, they soon mastered the theoretical parts, and after some ups and downs of failure and success, got somewhat acquainted with practical details; and in their ease a clever, handy, good-working labourer often constitutes their best assistant. The error consists not in employing and encouraging such a man, or even being proud of his ultimate success, if by perseverance and talent he make for himself a name—the error in such cases is, after a few months of such work, getting such a person admitted to a nursery, or elsewhere, as a *gardener*, and thus after a few months’ mere labour coming out as a competitor in the market with him who has spent years of toil and study in the profession. Make such a practice rather common, and need we wonder that gardeners cannot find work, and that gentlemen complain at times that the gardeners they get, though quiet, respectable men, are, as respects management, nothing better than labourers.

There can be no doubt that in cases where employers trust almost exclusively to their gardener’s skill, that different acquirements are needed for different places. In large places, as a general rule, the tact and talent of directing to the best results the labouring power of others are a matter of first importance. To think clearly, and regulate and direct efficiently, are the most important of the labours involved. In smaller places that are to be made the most of, the gardener must think, and plan, and also work. Though, therefore, there will always be gradation in remuneration, I believe it is a mistake to proportion wages exactly to the size and requirements of the place, as if by a finely constructed sliding scale. Hence the late Mr. Loudon used to say, that did he employ a gardener, one only, he would like to have the best man he could get, and pay him as well as a gardener to any nobleman in the land. He contended that great talent

was required to make the very most of a small place, and wisely considered that that talent could not be got and kept without adequate remuneration. Instances are not wanting where this principle is honourably carried out to the benefit of all parties concerned.

Waving these matters, however, we may just allude to the causes of this over-abundant supply of gardeners. This I believe to be partly owing to the public praise (to which I have alluded) of gardeners and gardening. Enthusiastic youths dream of areadian bliss, and of every garden being more than an Elysium of happiness. Many intelligent youths, who otherwise would make first-rate gardeners, get therefore disgusted when they come into contact with the hard work and the unremitting attention, and thus lose the benefit their good education would give. Thus it often happens, that the man with fewest advantages, but *determined* to succeed, makes the best practical gardener; while the dreaming class very often become and continue slothful grumblers to the end of their days. Another reason that induces many to enter upon gardening is the attention and respect they see manifested to gardeners at exhibition time, if at no other. A third cause of over-supply is the ease with which many of the commoner operations may be soon and well performed; and the temptation thus to many to style themselves gardeners when they can merely dig, and rake, and mow. We have seen many labourers that few well-educated gardeners would equal at either the spade or the scythe. In fact, some young gardeners now-a-days consider such work altogether beneath them. At any rate, a little observation will often show that it is *above* them to do such things well. Under such circumstances, whatever kind feeling may do and propose, there will be great difficulty in making the wages of young gardeners what they ought to be. Low as they are, handy labourers compete with them for employment. Low as they are, there are more under-gardeners now than can get suitable employment. Increase the wages by a third, or even a fourth, to encourage and give the means for self-culture, and add no stringent condition or qualification, and you will merely increase the over-abundant supply. Ere long there would not be professional employment for the half of those seeking it; and the competition would again bring down the wages. Give higher wages, accompanied with higher necessary qualifications, and you will increase the comforts of those employed, and raise their position by lessening their numbers.

This brings me to what I consider the great cause of the present over-supply, and that is the carelessness of head-gardeners and commercial firms in admitting into the business any one and every one irrespective of all proper qualifications. In our boyish days the worthy old gardeners were more particular; they used to consider good scholarship and unstained moral character essentials in any aspirant, and if he knew something of the classics they liked it all the better. It would be wrong to say that the mantle of these worthies is not now honourably worn: but there can be no question that such tests and standards are getting far less attended to, though no profession or business depends for progress more on general intelligence than gardening. In those old days a certain county in the north was famed for striking great batches of young gardeners as if by cuttings, and sending them southward every year to seek their fortunes. The manufacturing process is confined to no one county now. The numbers turned out, after a year or two of so-called training, as fully-fledged gardeners, would require a dozen of souths and a dozen of Englands to find them in employment and places, greatly as gardens are increasing. Need we wonder that the expressions of disappointment should be loud and deep. The remedies for such over-supply and its consequences have been glanced at,—the chief remedy I believe to be a raising of the necessary qualifications for a gardener, and, perhaps, the test of examinations as propounded

and at one time carried out by Dr. Lindley. Such qualifications and tests of themselves would never make a practical gardener, but they would limit the supply, and prevent the ignorant and the presuming taking the place of the intelligent and the persevering. In a matter of such importance, instead of any reasoning of my own, I would wish to add the powerful concurrent testimony of one of the most eminent and successful of English nurserymen. Writing to me lately, he says—"The stock of young gardeners is too large. The supply is far greater than the demand. They are turned out too quickly and not sufficiently well grounded, and those who know least stick up the most. O, how I wish I could get a conference of the leading head-gardeners in the country on this subject, and induce them to be more particular as to what young men they took and commenced to make gardeners of. If you saw the letters I get from young men pretending to be gardeners, and wanting me to recommend them to places, you would say, 'Surely a man cannot be a gardener in these days without education—without having at the least as much as would enable him to write in his own English language;' and yet one finds that such a man has begun under some great gardener, has been passed on to some friend, then passed to another, and then the young man fancies he is fit for a head-gardener's place, though he cannot write his own name correctly; and in this way such men, destitute of all general intelligence, and who neither know nor feel their ignorance, are brought to compete with the good, the studious, and the educated young gardener. Thus the profession is let down and kept down, and the body of good gardeners is prevented taking that position which under other circumstances it would take, and to which it is fairly and fully entitled. I am not speaking of the honourable few, that without early advantages have made for themselves a reputation—have raised themselves out of the ordinary run by their own untiring efforts and persevering application and industry. All honour to such men! I am speaking of great numbers who never felt the necessity for such energetic application; and I am led to do so by having had, this very day, eleven gardeners here seeking my assistance, and seven of these seeking employment in my nursery; and when now, at eleven o'clock, after the toil, fag, and worry of the day, I look over my list, and my conscience tells me, that out of that eleven there are only three or four I could fully and really recommend—why one feels vexed and sad at such a state of things, and cannot help asking, Where is the cause to be found? The chief causes are, taking too many young men indiscriminately, and without education and intelligence, to be made into young gardeners. Two remedies present themselves. Every young gardener should serve an apprenticeship, and be able to show his indentures; and, secondly, the heads of the gardening world should agree and resolve to take, or recommend, no young man who had not, at the least, received or mastered for himself a fair English education. These acted on, would, in a few years, lessen the supply, and, consequently, raise the position and increase the salaries of gardeners generally. To remedy or lessen this painfully growing evil is surely worthy of general attention, and especially of those at all connected with the gardening press of the day."

Than the above writer no one could be in a better position for arriving at a right conclusion. I leave his words to form their legitimate impression. There might be a difficulty as to indentures, as gardeners are only servants. An exception is made for those who nobly make up for past and felt deficiencies; and rightly so, as many of our most successful and intelligent gardeners are, to their credit, in every sense almost self-taught men. As already indicated, let our young friends clearly understand, that though I approve of a test of intelligence as a means of limiting the supply of fresh recruits, I as firmly hold that great general intelligence will never com-

pensate for neglecting minute practical details. With the latter alone you will often be successful; with the former alone you will rarely be so; combine both and there will not only be success, but an additional pleasure in your work. Finally, to those who like comfort, enjoyment and ease, bodily and mental, I would say, commence not gardening, or leave it as soon as you can. To the energetic and resolved, to whom obstruction and difficulty whet the appetite and give a relishing zest for fresh conquest, I would say, persevere, and comprehend everything clearly as you go on, and, even under present circumstances, success will ultimately be certain.

Were such hindrances as those referred to lessened or removed, the way of success would not be shorter, but it would be surer; and, instead of being so much blocked and encumbered with entangling thorns and nettles that prick and sting, it would often be cheered and lighted up with rose-buds and flowers, the types of physical and mental comfort.

R. FISH.

PEACHES AND NECTARINES.

I CANNOT imagine how it is that more people produce good Grapes than good Peaches. It certainly is not because the latter are more difficult of culture: I consider the Vine quite as delicate a subject to handle as the Peach. I was at a noted horticultural exhibition a few days since, and where very excellent Grapes were shown: but the Peaches, taken in the lump, were contemptible. To be sure one dish was up to mediocrity, but these would not weigh above five or six ounces each; and *Royal Georges*, forsooth, which kind I had exhibited a score years since, as much as twelve ounces and a half. In good truth, a *Royal George* or a *Galande* of less than eight ounces should not show its face at respectable exhibitions.

Since matters stand thus, let us inquire into the subject, and endeavour to ascertain the reasons for this partial failure, for so I must persist in terming it. And here as a preliminary let me remark, that, although cautious and experienced practitioners recommend the use of turfy or fibrous loams in preference to a preponderance of manurial matters, yet (and it may surprise the inexperienced to learn that), the very same persons may be found using a very considerable amount of stimulus at given periods in the history of their annual fructification. I will here take the liberty of stating my practice this spring with a Peach-house, which, at this moment, I would venture to show against any house in Britain. The trees have been planted three years, and they fill the trellis from the ground to the ridge-plate. The trellis being parallel with the roof at fifteen inches' distance all through, presents, of course, a considerable surface. The border, on arches communicating with the outside, was composed of fresh loam from an old headland in a pasture; but with the addition of some old hotbed lining of leaves, &c., and a good deal of charred rubbish. The trees have thriven to admiration, and last year carried an enormous crop of superior fruits: this year promises to completely excel the last.

Now as to treatment. The pinching system has been followed up for a couple of years; and, in consequence, the chief of the fruit are on spurs—that is to say, the bases of the pinched shoots of last summer's growth. This practice I have before urged in *THE COTTAGE GARDENER*; and at the end of this season I hope to be in a position to thoroughly prove it. The treatment has been the same this summer. They were pinched on May the 30th for the fourth time: but some of the lower and inferior branches, being a wee bit below the strength of their compeers, are to this moment unpinched and ramble wildly. By the end of summer I shall have placed those branches on the most perfect equality. The compost of these trees being very porous through a liberal introduction of charred rubbish and a turfy loam, the trees require water most liberally: this they have had at

least once a-week. I have constantly applied guano water of the strength of about one ounce to the gallon, and with very great benefit. What with the frequent pinching of the stronger portions of the trees and the manure water, the foliage is of a peculiarly heavy green colour, and the fruits are swelled to the very utmost, as far as the first swelling can possibly carry them. They are now just beginning to take their final swelling, the stoning process being complete; and they shall have manure water about twice more, when I shall desist watering in order to obtain high flavour. In due time I will report in these pages the final result of these promotions, giving weight, quantity, and quality. I have thus detailed my practice to show that, although I have been a strenuous advocate for simple loamy soils, yet that I am as strenuous an adviser of the use of manure waters when a real occasion exists for their application.

Whilst I am speaking of Peaches, let me advert to a few salient points in the matter of protection, &c. It seems to be a very generally recognised practice at last; and no wonder. Some persons are in the habit of drawing too hasty inferences from slender arguments: and such has been, in part, the case with the protection question in fruits. I have known gardeners years since, who dreaded innovations, point in an exulting mood to trees well set with fruit, and boldly ask, What is the use of protection? Such has occurred in genial springs, when, in truth, protection possibly need not have been cared for. But by the old saying, "One swallow does not make a summer," and one runaway conclusion may not settle matters which require some breadth of consideration and well-digested evidence to settle. And without any desire to trespass on the regions of politics, I must borrow one of their favourite modern maxims, "The best way to maintain peace is to be prepared for war."

There are so many contingencies in gardening, that gardeners should really sleep with their armour on. The use of net is recommended. No nets for me. Why stop half way in this affair, if the principle is thoroughly recognised? And how strange it does appear to observe one person strenuous above measure as to the newer pet—the orchard-house, and the same quarrelling with his gardener about the expense of canvass. He has known, he will tell you, crops fail after all the fuss about protection; but let us have, as Mr. Mechi said, a balance-sheet. Has there, I wonder, been any failure in orchard-houses? The orchard-house is, doubtless, a useful adjunct when carried out on right principles; and it is more—it is a fashionable pet. Had, however, any good practical gardener thirty years since proposed to his employer to build a bouncing house to the tune of something like a hundred pounds, in order to grow Plums, Pears, &c., how he would have been stared at. "Like quills upon the fretful porcupine" would his worthy employer's hair have stood erect.

With much deference, indeed, to those who go a-head in this orchard-house matter. I would invite them, one and all, to consider what an English fruit garden is by universal acceptance. There must be walls, expensive walls, otherwise it will be only a Scotch Kail yard.

These are costly matters; and they are not only a boundary necessitated, but were there no boundary necessary, persons living at their ease would be found to build walls specially for the culture of the better fruits: so truly attached is the Englishman to a good garden.

Why, then, not do all that science and labour conjoined can carry out? Surely it is high time that most thinking men in Britain—albeit, the thinking may be a little wide of their own profession—were in a position to weigh the respective merits of a few antagonistic practices in gardening.

Let me now observe as to the Peach, that there is still some little misconception as to the use of the engine, or its little representative, the syringe. The real fact would appear to be, that the Peach does not require such fre-

quent ablutions; at least not as to its physical needs. I am assured that the origin of so many watery applications is to be found in the dread that had so long existed as to the eruptions of the red spider. But we have "a change of cases," as Burns said; we fear not the spider now-a-days. I have grown excellent crops of Peaches and Nectarines for years, and have not used a garden-engine to them for at the least twelve years. So it is evident that this practice is not indispensable. In-doors I use the syringe every afternoon; but applying water when the atmosphere is up to 80°, and out-doors at 50°, is very different. We all know that moisture is a heat robber; then why apply it pertinaciously under circumstances when we desire to retain every degree of heat?

There is nothing like a body of fermenting material inside the Peach-house. I have it from the swelling of the bud until the last or ripening swelling takes place. We who are getting into "the scar and yellow leaf," remember what a fuss the Dutch mode of gardening made some twenty-five years since, or more. The same having for an able exponent Mr. Niemanns, then, I think, gardener to Mr. Labouehere. Peaches, we were told, were taken from the walls, planted in Dutch pits, fermenting material applied, and lots of fruit directly. This was, indeed, a royal way to geometry.

As to insects, I am persuaded that the great, or principal, cause is drought at the roots—a drought unsuspected because not investigated. Indeed, this is the first cause, in most plants, of the red spider beyond doubt. This winter I did not even dress the wood of the trees with the sulphur mixture—the first time for years that I have omitted it—and I have not a spider, nor signs of any: indeed, the foliage is too dark for spider. As to drought, I am never content unless I probe the soil once a-week to the depth of several inches, first in one portion and then in another. This is the way to reveal secrets. If the border of soil is properly constituted, it is astonishing what a quantity of water healthy trees laden with fruit require. The house to which I have alluded, which is just thirty feet in length, and the border within only five feet, has received about forty or fifty gallons of weak guano water ever since the fruits were as large as Gooseberries.

R. ERRINGTON.

THE SCIENCE OF GARDENING.

(Continued from page 178.)

WE may now proceed to consider manures—a class of bodies of the first importance to the cultivator of the soil, yet of the economy of which he is generally most ignorant, inasmuch as that their judicious employment requires considerable chemical requirements. Every substance increasing the fertility of a soil, when incorporated with it, is a manure; hence the earths, when applied to regulate its retentive powers, are actually manures.

Manures are derived from animals, vegetables, and minerals; they *directly* assist the growth of plants; *firstly*, by entering into their composition; *secondly*, by absorbing and retaining moisture from the atmosphere; *thirdly*, by absorbing the gases of the atmosphere; and, *fourthly*, by stimulating the vascular system of the plants.

Manures *approximately* assist vegetation: *firstly*, by killing predatory vermin and weeds; *secondly*, by promoting the decomposition of stubborn organic remains in the soil; *thirdly*, by protecting plants from violent changes of temperature.

All these properties seldom, if ever, occur in one species of manure, but each is usually particularised by possessing one or more in a superior degree. That is the most generally applicable manure which is composed of matters essential to the growth of plants; the chief of these are carbon, hydrogen, and oxygen; therefore, all animal and vegetable substances are excellent manures. It would evidently be of great benefit, if every plant could be manured with the decaying parts of its own species. The ancients made this a particular object. We read that those Vines were the most fruitful, which were manured with their own leaves and prunings, and the skins of expressed Grapes.* This

rule might be so far followed, as that the stems of Potatoes, Peas, &c., could be dug respectively into the compartments where those crops are intended to be grown in the following year.

FARMYARD MANURE.—M. Boussingault made many experiments upon farmyard manure; and when formed by the excretions of thirty horses, thirty oxen, and from ten to twenty pigs, on the average of three years, it contained 20.7 per cent. of dry matters, and 79.3 per cent. of water.

When analysed more completely after being dried at a temperature of 238°, the same manure was found to contain on the average,—

Carbon	35.8
Hydrogen	4.2
Oxygen	25.8
Azote	2.0
Salts and earths	32.2
	100.0

When moist, its composition is represented by:—

Carbon	7.41
Hydrogen	0.87
Oxygen	5.34
Azote	0.41
Salts and earths	6.67
Water	79.30
	100.0

EXCRETIONS OF THE HORSE.—A moderate-sized farm horse was fed upon hay and Oats. The urine and the excrements together contained 76.2 per cent. of moisture. In twenty-four hours the excretions weighed—moist, 34.2 lbs.; dry, 8.1 lbs.

Their composition was found to be:—

	In the dry state.	Moist ditto.
Carbon	38.6	9.19
Hydrogen	5.0	1.20
Oxygen	36.4	8.66
Azote	2.7	4.13
Salts and earths	17.3	4.13
Water	„	76.17
	100.0	100.0

EXCRETIONS OF THE COW.—A cow was fed upon hay and raw Potatoes. The urine and excrements together contained 86.4 of moisture. The weight of the excretions in twenty-four hours was—moist, 80.5 lbs.; dry, 10.9 lbs.

Their composition by analysis was:—

	Dry.	Wet.
Carbon	39.8	5.39
Hydrogen	4.7	0.64
Oxygen	35.5	4.81
Azote	2.6	0.36
Salts and earths	17.4	2.36
Water	„	86.44
	100.0	100.0

EXCRETIONS OF THE PIG.—The pigs, upon which the observations were made, were from six to eight months old. They were fed upon steamed Potatoes. The urine and the excrements lost by drying 82 per cent. of moisture. The average of the excretions yielded by one pig in twenty-four hours was—moist, 9.1 lbs.; dry, 1.6 lbs. Composition:—

	Dry.	Moist.
Carbon	33.7	6.97
Hydrogen	4.8	0.86
Oxygen	32.5	5.85
Azote	3.4	0.61
Salts and earths	20.6	3.71
Water	„	82.00
	100.0	100.0

The litter that is generally employed is wheat-straw. This straw, in the condition in which it is used, contains twenty-six per cent. of moisture. Its composition is:—

	Dried.	Undried.
Carbon	48.4	35.8
Hydrogen	5.3	3.9
Oxygen	38.9	28.8
Azote	0.4	0.3
Salts and earths	7.0	5.2
Water	„	26.0
	100.0	100.0

* Crescentius Agric., sect. 2, c. 6.

Each horse received daily as litter 1.4 lbs.; each cow, 6.6 lbs.; each pig, 4.1 lbs. of straw.

To the stables and the cowhouses together were given every twenty-four hours 132.0 lbs. of straw for thirty horses; 198.0 lbs. for thirty horned cattle; 66.0 lbs. for sixteen pigs; making 396.0 lbs. of straw, estimated when dry at 292.6 lbs.

The composition of the materials which constitute the dung produced in one day are set forth in the following table:—

Excretions yielded in 24 hours by	Weight when dry.	Weight in the wet state.	Elements of the dry matter.					Water con- stituting the wet matter.
			Carb.	Hydr.	Oxyg.	Azote.	Salts and earths	
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Thirty horses ...	245.08	1028.28	91.60	12.32	89.10	6.69	42.46	783.20
Thirty horned cattle	327.36	2116.48	130.24	15.40	116.16	8.58	56.98	2089.12
Sixteen pigs	26.10	146.74	19.12	1.32	8.58	0.88	5.50	120.34
Straw used in litter	292.60	396.00	141.68	15.62	113.74	1.10	20.16	103.40

The average or mean composition of this mixture may be taken as follows:—

In the dry state.					In the wet state.				
Carb.	Hydr.	Oxyg.	Azote.	Salts.	Carb.	Hydr.	Oxyg.	Azote.	Salts.
42.3	5.0	36.7	1.9	11.1	9.4	1.2	8.2	0.4	3.2
That of the resulting dung:—									
35.8	4.2	25.8	2.0	32.2	7.4	0.9	5.3	0.4	6.7

On comparing the composition of the dung-heap with that of the different kinds of litter collected in a day, little difference is observed; the larger quantity of saline and earthy matters discovered in the fermented manure is readily explained from the additions of ashes incorporated with it, and also by the accidental admixture of earthy matters proceeding from the sweepings of the court, the earth adhering to the roots consumed as food, &c.—refuse of every kind, the residue after cleansing the various kinds of fodder for the stable and stall, &c., all went to the dung-heap. Lastly, and with reference to the elements that are liable to be dissipated in the state of gas, or which may be changed into water, the azote is perceptibly in larger quantity in the prepared manure than in the unfermented litter and excretions. This is at once seen on comparing the composition of these two products after the saline and earthy matters have been deducted.

	Carbon.	Hydr.	Oxyg.	Azote.
The composition of fresh litter, is	49.3	5.8	42.7	2
That of dung	52.8	6.1	33.1	3.0

Dung is, therefore, somewhat richer in azote and carbon than litter, and it contains less oxygen. It is the property of lignine undergoing decomposition, that it yield a product which relatively abounds more in carbon than the original matter, in spite of the carbonic acid which is formed and thrown off during the alterations undergone; this is owing to the elements of water being thrown off in relatively still larger quantity at the same time.—(Boussingault's Rural Economy.)—J.

WHITE ANEMONE APENNINA.

“As I see in THE COTTAGE GARDENER (No. 553, page 67) an assertion, that ‘there is no white *Anemone apennina* on record,’ I take the liberty of informing you, that, many years ago, a white *Anemone apennina* came up in my garden self-sown. I lost it in a few years. I am sorry that I neglected to propagate it.

“I cannot replace *Cornus Suecica*, though I have made numerous applications for it; I have even sent into the north of Scotland. I have had two or three small plants sent to me having one or two bulbs, but they soon died. I wish I could get two or three strong plants: I used formerly to cultivate this plant without the least difficulty. I used always to throw away

some of it when I parted it; but now I cannot cultivate it at all, though I am not aware of any difference in my treatment of it.

“I also want a strong plant or two of *Trientalis Europaea* and of *Anemone thalictroides* (*Thalictrum anemoides*).”—E. SIMONS, Ovington, near Watton.

[We have eaten to satiety of the berries of *Cornus Suecica* often in the Highlands. It and the *Trientalis Europaea* ought to be grown in a damp peat bed where the sun could not reach them. When they send up for the seeds of the red Scotch Pine to the forest of Braemar they could gather ever so much of both these northern plants, and some others that are better and more rare, if there were a demand for them.

The *Anemone thalictroides* is lost, we believe, unless it is in some botanic garden. That at Hull is said to be the most likely to meet with such rare things]

OUR FAMILY POMOLOGICAL SOCIETY.

We have been thinking THE COTTAGE GARDENER would like to hear something of our Family Pomological Society, the transactions of which, if not so important as those of the “British” affair of the same sort as ours, are doing something, we fancy, towards making two good Apples grow where one very indifferent, or, perhaps, none at all grew before.

Our rules are very simple. Our meetings are held at the hour of 8 A.M., commencing each year on the morning of the ripening of the first *Black Prince* Strawberry in June, and continuing daily till the last of our *Sturmer Pippins* is produced for exhibition. Our Society consists of the ordinary members of the family, and meets in the breakfast parlour of a cottage, in a Cheshire village, some mile and a half from the estuary of the Mersey, adjoining a well sheltered garden of half an acre, on a gentle slope facing the north. Our breakfast-table is always graced with a vaso of choice flowers, flanked with dishes plentifully piled with fruit, of which we all eat an unlimited quantity. Indeed, one of our Society, whom we call our “extraordinary” member, goes to a fearful length in this way at times; and in the dead of the past winter restricted himself to uncooked fruit alone, to the exclusion of beef, bread, butter, tea, coffee, water, and everything else, eatable or drinkable, for upwards of forty days, with, as he says, manifest benefit, physically and morally. We shake our heads at this, of course; but cannot help thinking that the morning is the time to enjoy fruit most, and that he who cannot digest a *Targoneille* at breakfast-time, the sooner he gets his stomach toned up to that point the better. So we have fixed on this early hour for our pomological meetings, conceiving we can better judge of the qualities of the fruit submitted to us before our taste has been vitiated with the tea and toast which usually accompany our sederunts.

The fruit experimented on consists of the produce of several hundred pyramids and bushes in the aforesaid garden, including 137 varieties of Apples—in fact every one we have been able to procure of what Hogg’s “Pomology” calls first-rate; seventy Pears; all the Gooseberries marked “first-rate,” in the Edinburgh catalogues; and a fair assortment of Plums, Cherries, and the smaller fruits. We may mention, that being only tenants, our whole orchard is removed biennially, and will be so till the grand transplantation we look forward to, when we hope to flit from a house to a home, and tread on our own soil, amongst our own Apple and Pear trees, with no landlord to make us afraid. Indeed, one principal object of our Family Pomological Society, is to be provided against such a time with the means of making a good selection of the hardy fruits suitable to this district; so that from July to June we may have a continuous and successive supply of the very best our soil and climate can produce. We have already, in the meetings of our Society during the past year, learned enough to know, that, with all the advance of pomological science, this has not yet been done, and that, of course, we must do it for ourselves. For a year or two our labours will be a little restricted, some of our trees not having yet come into bearing; but we have already got so many facts entered in our register, that we anticipate shortly to accumulate quite a valuable heap of statistics: and one object in writing now, is to induce other fruit-eating family circles to do likewise, as well for their own pleasure and profit as the general furtherance of pomological knowledge.

We have room to refer, at present, to only one feature of our inquiries, perhaps the most interesting,—that to which the British Pomological Society is, in particular, directing its attention,—the

ascertaining more correctly than has been yet done the best varieties of each fruit at different seasons of the year. The *Ribston Pippin*, though at the very top of the tree,—the Apple tree we suppose,—is “nowhere” in April and May, and equally so in September. The *Sturmer Pippin* is by no means to be despised, even in June, but is very indifferent even so late as March. Our Society’s notion after one winter’s session is, that the period of perfection of each individual sort is much shorter than is generally supposed. The *Golden Reinette* though one of the very best we had in the early part of December (and we feel every reason to be satisfied with our fruit-cellar, so far as Apples are concerned), was, after New Year’s day, excelled by others not to be compared with it in popularity in the garden world. Exceptional seasons will occur, though even these are governed in their effects by laws we may attain some acquaintance with; but what we want is the date on which, on the average of years, each good fruit is superior to any and what others, and on what date it is superseded in quality by later sorts. The British Pomological Society will do a great deal; but soil and locality influence nearly every variety so much, that fruit-growers must rely in a great measure upon the results of their own experience; and unless these be recorded in writing, whether by a family society or otherwise, for comparison year by year, they are but little to be depended on.—FRUIT-EATER.

[We shall be pleased to have the result of your experience, which you have taken the most effectual means to acquire. Much is to be done in this way, and we commend your example to all who are interested in fruit culture.—EDS. C. G.]

NOTES ON NEW OR RARE PLANTS.

DILLWYNIA FLORIBUNDA. *Smith.* Nat. ord., *Leguminosæ*. Native of New Holland.—Greenhouse evergreen, with shrubby, erect habit. Branches moderately stout, numerous. Leaves alternate, short, linear, stiff, and leath-like. Flowers axillary, usually in pairs on very short peduncles. Calyx clothed with very short hairs; two lipped, slightly campanulate, upper lip divided into two short, acute, slightly reflexed segments, and the lower one composed of three short, acute, ovate teeth. Standard spreading, deeply lobed or emarginate at the apex; orange, with a green spot, surrounded by a zone of crimson near the base. Wings short, oblong, crimson. Keel very short, crimson.

A very excellent greenhouse plant, well-known in gardens under the name of *D. splendens*. The habit being naturally fine, and being also a profuse bloomer, it is a favourite exhibition plant, and is often seen at our metropolitan exhibitions in good collections of greenhouse plants. Sandy peat, with a small portion of light loam, and a good allowance of silver sand, are a compost in which it will thrive well. Cuttings of the partially-matured shoots should, in early spring, be put in very sandy peat, and plunged in a very mild hotbed under a glass. It blooms in April, May, and June, and ripens seeds plentifully.

DILLWYNIA PEDUNCULARIS. *Bentham.* Native of New Holland.—A greenhouse evergreen, of rather prostrate habit. Branches very slender, drooping, clothed, in a young state, with very minute hairs. Leaves short, linear, with a few scattered, minute hairs upon the margin. Flowers terminal, upon a wire-like peduncle, about two inches in length. Pedicels very short, and each furnished with a small bract. Calyx slightly campanulate, two lipped; the upper lip is divided into two acute teeth, and the lower lip into three very acute divisions. Standard spreading, with a very deeply-lobed apex, scarlet, tinged with orange. Wings very short, ligulate, scarlet. Keel very short, also scarlet.

This is a less common species than the above, with brighter coloured flowers, but more troublesome habit, and, consequently, requiring more expenditure of time in forming handsome specimens. With the exception of greater attention to tying out and stopping, the conditions of culture recommended for *D. floribunda* are applicable, with the same success, to this species. It is sometimes seen with the garden name *D. cinnabarina*.

COLEONEMA PULCHRUM. *Hooker.* Nat. ord., *Rutaceæ*. Native of the Cape of Good Hope.—A greenhouse evergreen shrub of admirable habit. Branches slender, tinged with red. Leaves linear, lying close to the branches when young, acute. Flowers axillary, terminal, and solitary. Calyx based by several subulate green bracts. Sepals five, subulate, acute. Petals five, oblong, bright rose. Stamens five, rising from the base of the sepals,

opposite to and not longer than them, with small, round, capitate, red anthers. Pistil very short.

A very beautiful plant of comparatively easy management. Sandy peat about two parts and light fibrous loam one part, with plenty of sand, and a few small pieces of charcoal well mixed with the soil, are a very suitable compost for this plant. It blooms most profusely in May, and ought to have a place in every choice collection of ornamental greenhouse plants. Cuttings in the usual way for greenhouse plants.

HOTELA JAPONICA. *Morren* and *Decaisne.* Nat. ord., *Sauri-fragaceæ*. Native of Japan, Nepal, Gossain, and Kanaon.—A hardy herbaceous plant growing about eighteen inches high. Leaves alternate, biternate, with ovate, acute, sharply serrated leaflets; the petioles thickened towards the base, and tinged with purple, and at the very base are several spreading brown hairs. Stipules ovate, acute, membranous, deciduous. Flowers in large, terminal panicles, with downy peduncles and pedicels, bracteated. Bracts somewhat foliaceous, small and numerous. Calyx consisting of five deeply-cleft segments. Petals five, spatulate, white. Stamens ten, projecting beyond the calyx and corolla. Pistils two.

This plant is better known under the name of *Spiræa Japonica*. Its habit is extremely like an herbaceous *Spiræa*, and the panicle of flowers is also superficially the same as that genus. It is very valuable as a winter-foreing plant; indeed, I know no plant more so. Out of doors it is best suited with a position moderately moist and partially shaded, and it will thrive in almost every kind of garden soil that is not a binding clay; but it thrives best in a mixture of loam and leaf soil or peat. As it flowers in April, care must be taken to keep off late spring frosts, or the blossoms may be prematurely cut. Propagates by division and seeds.—S. G. W.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 182.)

PEACHES.

Neil’s Early Purple. See *Grosse Mignonne*.

New Royal Charlotte. See *Royal Charlotte*.

NIVETTE (*Dorsetshire; Veloutée Tardive*).—Fruit round, elongated, depressed at the top. Skin pale green, bright red with deep red spots next the sun, covered with a fine velvety down. Suture shallow. Flesh pale green, deep red at the stone, rich, and sugary. Flowers small. Glands round. Middle of September.

NOBLESSE (*Lord Montague’s; Mellish’s Favourite*).—Fruit large, roundish-oblong, terminating with a small nipple. Skin pale yellowish-green in the shade, delicate red, marbled and streaked with dull red and purple next the sun. Flesh white, tinged with yellow, slightly veined with red next the stone, juicy, sweet, and very luscious. Tree hardy and healthy. Flowers large. Glands none. End of August and beginning of September.

Noire de Montreuil. See *Bellegarde*.

Noisette. See *Chancellor*.

Newington. See *Old Newington*.

OLD NEWINGTON (*Newington*).—Fruit large, roundish, marked with a shallow suture. Skin pale yellow in the shade; and fine red marked with still darker red on the side next the sun. Flesh yellowish-white, deep red at the stone, to which it adheres; of a juicy, rich, and very vinous flavour. Flowers large. Glands none. Ripe the middle of September.

D’Orange. See *Yellow Admirable*.

Padley’s Early Purple. See *Grosse Mignonne*.

Pavie Camu. See *Pavie de Pomponne*.

Pavie Monstrueuse. See *Pavie de Pomponne*.

PAVIE DE POMPONE (*Gros Malecoton; Gros Persèque Rouge; Monstrous Pavie of Pomponne; Pavie Camu; Pavie Monstrueuse; Pavie Rouge de Pomponne; Pavie Rouge*).—Fruit immensely large and round, terminated by an obtuse nipple, and marked on one side with a shallow

suture. Skin pale yellowish-white, slightly tinged with green on the shaded side, and of a beautiful deep red next the sun. Flesh yellowish-white, deep red at the stone, to which it adheres; in warm seasons it is of a vinous, sugary, and musky flavour, but otherwise it is insipid. In this climate it rarely if ever attains perfection. Flowers large. Glands kidney-shaped. Ripe the middle and end of October.

Pavie Rouge. See *Pavie de Pomponne*.

Pavie Rouge de Pomponne. See *Pavie de Pomponne*.

Pêche d'Abriçot. See *Yellow Admirable*.

Pêche de Malte. See *Malta*.

Pêche Jaune. See *Yellow Alberge*.

Petite Mignonne. See *Small Mignonne*.

Petite Rosanne. See *Rosanna*.

Pound. See *Morrisania*.

Pourprée Hâtive. See *Early Purple*.

Pourprée Hâtive à Grandes Fleurs. See *Early Purple*.

Précoce de Savoie. See *Early Savoy*.

PRINCESSE MARIE.—Fruit medium sized, roundish. Skin yellowish-white, dotted with pale red on the shaded side, and dark red on the side next the sun. Flesh yellowish-white, rayed with red at the stone; melting, juicy, rich, and vinous. Glands none. Flowers large. Ripens in the middle of September.

PUCELLE DE MALINES.—Fruit pretty large, round, and depressed, having a well-marked suture. Skin clear yellow in the shade, but lightly coloured with red next the sun, and marked with brown spots. Flesh yellowish-white, slightly marbled with red round the stone, melting, juicy, sugary, and with a delicious perfume. Glands round. Flowers large. End of August and beginning of September.

Purple Alberge. See *Yellow Alberge*.

Red Alberge. See *Yellow Alberge*.

Red Avant. See *Red Nutmeg*.

RED MAGDALEN (*French Magdalen; Madeleine de Courson; Madeleine Rouge*).—Fruit rather below medium size, round, and flattened at the stalk. Skin pale yellowish-white in the shade, fine bright red next the sun. Suture deep, extending on one side. Flesh white, veined with red at the stone, firm, rich, sugary, and vinous. Flowers large. Glands none. End of August and beginning of September.

RED NUTMEG (*Avant Pêche de Troyes; Avant Rouge; Brown Nutmeg; Red Avant*).—Fruit small, roundish, terminated by a small round nipple. Skin pale yellow, bright red, marbled with dark vermilion next the sun. Suture distinct. Flesh pale yellow, reddish under the skin on the side next the sun and at the stone, sweet and musky. Very early and hardy. Flowers large. Glands kidney-shaped. July and August.

Valuable only for its earliness.

Ronalds' Brentford Mignonne. See *Bellegarde*.

Ronalds' Galande. See *Grosse Mignonne*.

ROSANNA (*Petite Rosanne; St. Laurent Jaune*).—Fruit medium sized, roundish. Skin yellow, deep purplish next the sun. Flesh deep yellow at the circumference, and deep red at the stone; firm, rich, sugary, and vinous. Tree bears well as a standard, and is very productive. Flowers small. Glands kidney-shaped. Middle of September.

This is very different from Alberge Jaune, which is sometimes called Rosanna.

Rouge Paysanne. See *Red Magdalen*.

Royale. See *Boudin*.

ROYAL CHARLOTTE (*Grimwood's Royal Charlotte; Kew Early Purple; Lord Fauconberg's; Lord Nelson's; New Royal Charlotte*).—Fruit rather large, roundish-ovate. Skin pale white, deep red next the sun. Suture moderately distinct. Flesh whitish, pale red next the

stone, juicy, rich, and vinous. Flowers small. Glands none. Beginning of September.

ROYAL GEORGE (*Double Swalsh; Dubbele Zwolsche; Griffith's Mignonne; Loekyer's Mignonne; Madeleine Rouge à Petites Fleurs; Millet's Mignonne; Superb*).—Fruit large, round, and depressed. Skin very pale, speckled with red in the shade, marbled with deeper colour next the sun. Suture deep and broad at the top, extending round almost the whole circumference of the fruit. Flesh pale yellowish-white, very red at the stone, very juicy, rich, and high flavoured. Flowers small. Glands none. August and September.

Royal Kensington. See *Grosse Mignonne*.

Royal Sovereign. See *Grosse Mignonne*.

St. Laurent Jaune. See *Rosanna*.

SALWAY.—Fruit medium sized, round. Skin of a deep rich yellow colour. Flesh deep orange colour, very melting, juicy, and vinous. Glands kidney-shaped. Flowers small. Ripe in the end of October and beginning of November.

This is a very excellent late variety. The skin and flesh are like those of an apricot, and the latter is very juicy and highly flavoured.

Sandalie Hermaphrodite. See *Yellow Admirable*.

Seandalian. See *Yellow Admirable*.

SHANGHAI.—Fruit very large, roundish. Skin pale yellowish-green on the shaded side, and light red next the sun. Flesh pale yellow, very deep red at the stone, to which some of the strings adhere; melting, juicy, and richly flavoured. Glands kidney-shaped. Flowers large. Ripens in the middle of September. The tree is an excellent bearer, and requires a very warm situation to ripen the fruit properly. It was introduced from China by Mr. Fortune.

SMALL MIGNONNE (*Petite Mignonne; Double de Troyes*).—Fruit small, roundish, flattened at the base, marked on one side with a deep suture. Skin yellowish-white in the shade, and bright red next the sun. Flesh white, pale red next the stone, melting, very juicy, rich, and excellent. Stone small and oblong. Glands kidney-shaped. Flowers small. Ripens early in August.

This ripens after the Red Nutmeg, and is one of the best early peaches. The tree is well adapted for pot culture.

Smith's Early Newington. See *Early Newington*.

Smooth-leaved Royal George. See *Grosse Mignonne*.

(To be continued.)

JAPAN PERSIMMONS. — Mr. Townsend, Consul-General at Simoda, Japan, in a letter published in the *New York Tribune*, says:—"The only fruit that I have seen in Japan, that particularly merits notice, is the Kali, a variety of *Diospyros*, and belonging to the order of *Ebenaceæ*; it is really worthy of being introduced into the United States. Quite a number of sorts have been brought to me; one has a skin as thin as tissue paper, and the pulp resembles the Egyptian Fig in flavour. Another variety has a thick rind, and a firmer pulp than the sort first mentioned, while the taste strongly reminds one of the flavour of the delicious Mango of Siam and Bombay. The tree is very ornamental, and of rapid growth. It would, no doubt, succeed in any part of the United States, south of 37° lat. Unlike the Persimmon of the United States, there is very little astringency in the skin of the fruit; and frost, which matures the Persimmon, greatly injures the Kali. This fruit varies in size, but is always larger than its American relative, and some are seven inches in diameter. The fruit is in season nearly three months. The Japanese dry this fruit, which enables to keep it for some four months. When dried, it resembles the dried Smyrna Fig in taste."—[The fruit here mentioned is the *Diospyrus Kali*, and is frequently imported from China, and offered for sale in European fruit stores, from whence, doubtless, seeds could easily be obtained. We believe they are called "Chinese Dates," in Europe.]—(*Ed. American Gardener's Monthly*.)

NOTES ON APPLES AND PEARS.

(Continued from page 136.)

From the Apple orchards I must now journey back through the Filbert, Yew, and Pear gardens towards the little village of Winsley, nearly in the centre of which is situated the residence of the owner of this small estate. Although but very little above half a mile distant, yet it is at an elevation of more than five hundred feet above the level of the river Avon. It is not to the residence that I must draw your attention—although it is one of the most ancient houses in the village, and one where many of the good old English customs are still adhered to—but to a peep into the fruit-room, which is in a building that is adjoining. Before this I must notice a few of the many objects which stand so prominently in the way as we pass.

There are several small gardens that are wholly devoted to Pear trees. These have all been planted within the last six years, and many of them within the last three. There are frequently to be found several of the same kind planted together; then in another part of the garden there are other trees of the same kind, where the soil is different, to prove from which the fruit is best, the results of which will be found some day amongst that venerable gentleman's private papers.

In the autumn of 1857, as soon as the leaf began to drop, the whole of them were root-pruned, which was the second time to a good number of them; and upwards of an hundred of them were taken up and shifted to another garden without feeling the effects of their moving the least. They were copiously supplied with water when planted, and at intervals during the summer. The whole of these had their branches, when first planted, tied down in a pendulous mode; but, finding this system of training a perfect vampire on time, it was abolished. Now take a glance at the lot together. They are a host of good pyramidal-shaped trees, planted in rows sixteen by twenty feet apart. If the root pruning is not properly attended to in all trees attempted to be grown as pyramids, the branches had much better be allowed to take their own course: if they are not, the result will be—

"Cutting, cutting all the time,
Without any effect at last."

Once in two years I find quite often enough to perform this task, unless there is an over-luxuriant growth in the wood, which is very seldom the case when they are taken to in proper time—that is, when they are first planted.

From the orchards to the smaller gardens there are private walks with different kinds of pyramidal and pillar-shaped evergreens planted on both sides of the walks; and from the small gardens to the house, which form very pleasing objects to the eye, there is a tremendous zigzag kind of hill to climb. As the hill is ascended towards the house, the view becomes more extended; in fact, the views that are commanded from different points in these walks are such, that when once seen they are never forgotten. One of these walks terminates at a point where one of the principal entrances is to the house. On each side of this walk there is a row of the newest and rarest kinds of Pears trained as pyramids; and at the end of this walk is the fruit-room, which is in a building, as I before said, that is adjoining the house.

The ground floor of this building is used for domestic purposes. The large room is about thirty feet in length by eighteen in width, with a large window at the south-west end of the south side of the room: also at the north-east end of the north side of the room is another, with thick woollen curtains to keep the frost out in winter, which are drawn on iron rods. Both windows are left open for some time when the fruit is first gathered; and at intervals they are opened for a few hours all through the winter months—that is, when the fruits feel clammy or damp. Shelves are placed all round the room, supported at the front on pillars extending about three feet from the wall. Particular attention is here paid to the gathering of the fruits; also to the arranging of them after. The proper time to gather any of the kinds depends on the earliness or lateness of the season. Many opinions have been passed on the best time to gather these fruits; but the best criterion that I could find to go by is, to cut one of the fruits: if the pips are full grown and turned brown the fruits are fit to gather.

There will be no difficulty, then, in getting them in at the right time, if the date they were gathered the year before were referred to, and then what kind of season we had to follow it. Every kind as it is stored away here is named, and the date of the month it was gathered added. The kinds are arranged or divided into three classes, firsts, seconds, and thirds, which is

done when they are gathered. If they were not, they have to pass through a person's hands many times, which is a great detriment to their keeping qualities.

The firsts are those that are without blemish—good in every point. The seconds are those that are disfigured with warts, cracks, or other deformities. The thirds are all the small ones, which range about one size. All that are bruised are used for cider. Many might think this useless trouble, but it is not a whit more than it is to store them all away together; and afterwards it saves many hours in looking them over, and saves them from numberless bruises also. All are put on old newspapers. In very damp or frosty weather they are covered over with the newspapers; but in bright open weather the paper coverings are taken off. It is very seldom there are many shrivelled ones amongst them. On the 1st of April many of the firsts were in as firm and perfect a state as when gathered. I have not the least doubt but that many of them are the same now.

J. ASHMAN.

THE IVY.

THE poetic feeling which hangs over certain plants tends, in a great measure, to enhance their value. The Laurel is invested with a certain dignity, from the fact of conquerors of old being crowned with Laurel on occasions of public triumphs. Although we are told the plant so used was not the "Laurel" of the present day, but an *Alaternus*, yet the name Laurel carries with it a more commanding sound, and it is allowed to have the credit of being the plant employed in so ennobling a purpose. Amongst ourselves there are many plants whose beauty or utility invests them with an interest not granted to others of their class. The Oak is certainly not the loftiest nor yet the most bulky tree we have; but it is "an Oak," and, what is more, "a British Oak." The Hawthorn, or May-blossom, is also every one's favourite; and, descending lower, the hedge-side *Priunose* merits and receives its due meed of praise and attention. Another member of the vegetable kingdom (it would be wrong to call it a tree) is also pretty generally admired, and very widely distributed—THE IVY—which is, perhaps, after all, the finest and most useful evergreen creeper we have. Many of our most venerable monuments of antiquity would be but mouldering heaps of ruins, if not kept clasped together by its everlasting embrace; but, however firmly it may adhere to the relic of a former dwelling, it clings with equal tenacity (or often more so) to the living tree of the present one; and so tightly does it wind itself around the tree, that in course of time it destroys the tree it clings to, even be that tree ever so healthy and vigorous when it commences to envelope it. An Oak or other deciduous tree will endure it longer than a Fir tree; but the same result is sure to follow—a stunted sickly growth, ending in the death of the tree.

That Ivy will kill a tree, I have the most ample proof here (Linton). Some large Spruce and Silver Firs in the pleasure-ground becoming covered with Ivy, were allowed to remain so. The Ivy quickly made its way to the top, and latterly it branched out in the stubby character common to it; the branches of the trees dying off as the Ivy advanced, though not without that struggle for life which all vegetable nature makes on such occasions. In other words, the trees were several years in dying; but eventually they did succumb, the Ivy in the mean time gradually forming itself into one of the most beautiful cones of that dense vivid green which Ivy alone can give. A uniformly tapering spire of this kind upwards of seventy feet high was a pretty object, and elicited general admiration. But, alas for such beauty! the dead trunk of the Fir tree was unable to bear the ponderous load it had carried when in life and health, and the result was, a high wind broke one of our most ornamental pyramids completely in two about fifteen feet from the ground, the tree being at that place about fifteen inches in diameter; but decay had set in, and an unusual high wind brought it down. Another fine tree having upwards of eighty cubic feet of timber was cut down, after being all but killed by this insidious parasite. This was fast assuming that fine conical shape so becoming in the tree; and I much fear one tree we have, which has lately grown into a fine, uniform, conical shape, will also give way to the weakening influence of decay. While such objects do stand, there is nothing can exceed their beauty.

Ivy, like everything else, has its favourite abode,—usually a dry stony soil partaking more or less of limestone. On such a soil it will usurp dominion over every thing it comes in contact with. Healthy, vigorous trees have often fallen a prey to it, when not

relieved of its tight, bracing ligatures. Consequently, when there is a danger of trees being strangled by this cumbrous appendage, it is the best way to cut it at the bottom, and take as much off as can be got at. If it only be cut it will save the tree, and the dead Ivy will be shaken off in time.

Ivy, however, is not so difficult to keep down as some other pests; but its insidious attempts to climb require frequent attention. Trees infested with it must not be injured by carelessly chopping the Ivy in two at the bottom, using the tree as a block, as that cuts and wounds the living tree at a place where it is important for it to be sound. But in this case, as in many others, the work of keeping Ivy down is not so serious when it is timely attended to; for delay and inattention, as in many other things, ruin the objects in question. In districts where Ivy predominates, means must be taken to keep it down, otherwise healthy trees may be looked for in vain; but in some places where a picturesque object is to be attained, Ivy accomplishes this sooner than most things, and though some have to expend a considerable outlay to get rid of it, others incur as much in its cultivation. The difference in the two places rendering this course necessary.—J. ROBSON.

ALOES v. APHIS.

FOUR ounces of aloes, and four ounces of soft soap, dissolved in a gallon of soft water, will kill all the species of aphides. But a much better and cheaper composition is the "Gishurst Compound," two ounces of this (it costs 1s. per lb.) dissolved in a gallon of soft water is the most efficacious remedy I have yet found. If the shoots of the infested trees can be dipped in the composition, the aphides are at once destroyed; but if used with the syringe, it will probably require to be applied twice.—T. R., Nurseries, Sawbridgeworth.

VARIETIES.

NOVEL DIGESTION.—In the incoherent rambles which the Amœba makes over the glass-slide, he meets occasionally with a bit of food which tempts his appetite: how will he appropriate it? Hands, to carry it to his mouth, he has none. Mouth, to receive it, he has none. Stomach, to digest it, he has none. One feels inclined to pity the hapless young gentleman who, to all theoretical appearance, must die of starvation in the midst of plenty. But Nature has provided even for this tiny existence. The care which extends throughout the universe will not fail even this microscopic point of life. We saw the Amœba dispense with legs and arms; we may now see him dispense with mouth and stomach; 'tis an accommodating creature, taking life by the easiest handle. There is the food; and he is seen deliberately *wrapping himself round it*. He will soon become all mouth and stomach. The food will be received into the substance of his body, a portion of which gives way, and closes again. There, such of it as is available will be assimilated, and the undigested remains will find their way out as they originally found their way in.

VALUE OF THE EARTH-WORM.—The common earth-worm, though apt to be despised and trodden on, is really a useful creature in its way. Mr. Knapp describes it as the natural manurer of the soil, consuming on the surface the softer parts of decayed vegetable matters, and conveying downwards the more woody fibres, which there moulder and fertilise. They perforate the earth in all directions, thus rendering it permeable by air and water, both indispensable to vegetable life. According to Mr. Darwin's mode of expression, they give a kind of under-tillage to the land, performing the same below ground that the spade does above for the garden, and the plough for arable soil. It is, in consequence, chiefly of the natural operations of worms that fields which have been overspread with lime, burnt marl, or cinders, become in process of time covered by a finely-divided soil, fitted for the support of vegetation. This result, though usually attributed by farmers to the "working down" of these materials, is really due to the action of earth-worms, as may be seen in the innumerable *casts* of which the initial soil consists. These are obviously produced by the digestive proceedings of the worms, which take into their intestinal canal a large quantity of the soil in which they feed and burrow, and then reject it in the form of the so-called casts. "In this manner," says Mr. Darwin, "a field, manured with marl, has been covered, in the course of eighty years, with a bed of earth averaging thirteen inches in thickness."—(*Encyclopædia Britannica*, New Edition.)

PURIFYING WATER.—In every age, and in every hot climate, from the healing of the waters of Marah until the present time, some vegetable has been employed to render noxious water palatable. In some parts of Ceylon, especially in the neighbourhood of the coast, where the land is flat and sandy, the water is always brackish, even during the rainy season, and in the dry months it is undrinkable. The natives then make use of a berry for cleansing it and precipitating the impurities. I know the shrub and the berry well; but it has no English denomination, (qv. *Strychnos potatorum*?) The berries are about the size of a very large Pea, and grow in clusters of from ten to fifteen together, and one berry is said to be sufficient to cleanse a gallon of water. The method of using them is curious, although simple. The vessel which is intended to contain the water, which is generally an earthen chatty, is well rubbed in the inside with a berry, until the latter, which is of a horny consistence, like vegetable ivory, is completely worn away. The chatty is then filled with the muddy water, and allowed to stand for about an hour or more, until all the impurities have precipitated to the bottom, and the water remains clear. I have constantly used this berry; but I certainly cannot say that the water has ever been rendered perfectly clear. It has been vastly improved, and what was totally undrinkable before has been rendered fit for use; but it has, at the best, been only comparatively good: and although the berry has produced a decided effect, the native accounts of its properties are greatly exaggerated.—(*Baker's Ceylon*.)

TO CORRESPONDENTS.

ORCHIDS UNHEALTHY (T. P., *Rastrick*).—The blooms of your *Stanhopea tigrina* have turned brown and shrivelled because you have kept the soil in the basket too wet. When *Stanhopeas* are flowering very little water should be given them; therefore mind not to water your *S. oculata* now showing flower. You say the *S. tigrina* is sending up three new growths. This should not have taken place till the flowers had dropped off; and confirms our opinion that you have overwatered the plants, and thus killed or rotted your flower-stem, and started a premature growth. The best accounts of the culture of orchids is in the first volumes of *THE COTTAGE GARDENER*. There is, however, a useful work on their culture by Mr. Williams, easily procured through your bookseller.

LIME WATER (W. Worth).—This is made by putting one peck of freshly-slaked lime into forty gallons of water about half an hour before using it. Stir it well, and when quite clear it is fit for use. You are quite right about growing *Liliums* well; but it is a question whether three or four in a pot may not be as well grown as if grown singly, and if they can they look richer. We have said all that we can about dressing flowers. There ought to be prizes for dressed flowers distinct from the prizes for undressed; at the same time, when it is known that dressing is allowed, there is nothing dishonest in the practice.

BOILING WATER FOR WEEDS (P. Burrell).—The only apparatus for this purpose that we know, is that invented by Mr. Fleming, and manufactured by Messrs. Shanks.

MANURING ROSES PEGGED DOWN (An Old Subscriber).—In the spring and summer apply liquid manure. Late in the autumn give a dressing of thoroughly-decayed dung and earth mixed together.

GAS LIME (W. Melton).—This is much more partially useful, and requires more care in using than the ammoniacal liquor. It ought to be mixed with earth some weeks before being used; and then we could not recommend its use except as a dressing to Clover, Lucern, and newly-sown Turnips.

PROPAGATING DOUBLE LYCHNISES (H. N. E.).—The *Lychnis* family is a very miffy one, they so soon tire of the same soil, and are gone off before one is aware of them. The *L. dioica pleno alba* should be attended to every spring, divided and fresh planted in fresh places; or even now, after flowering, into new and well-prepared spots, with all other attention to watering and earth-stirring when required, and the latter should be very often. *Spigelia marylandica* is a choice hardy plant, and delights in a moist soil composed of two parts peat, and one part loam. It increases but slowly by root division. The enclosed leaves are from the Alpine, or Silver-leaved Lady's Mantle, *Alchemilla alpina*.

GARDENING DISAPPOINTMENTS (An Old Surrey Subscriber).—Mildew on Strawberries, black aphid on Broad Beans, green fly on Roses, and mildew on Grapes, will occur even in gardens under the management of the best of gardeners; but such gardeners do not allow either the diseases or the insects to be the conquerors. They destroy the insects, and apply sulphur to the mildew immediately it appears. One test of a good gardener is his promptitude. He never puts off until to-morrow what ought to be done to-day. We cannot give an opinion as to the capabilities of your gardener, not having seen his practice. Read what Mr. Fish says in another of our pages to-day.

NAMES OF PLANTS (J. G.).—Your Fern is *Cystopteris bulbifera*, a hardy deciduous Fern from North America. (James Rollins).—Yours is the common Burnet, *Poterium sanguisorba*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

JULY 21st. PRESCOT. Sec., Mr. James Beesley, Prescott.
AUGUST 10th. ORMSKIRK AND SOUTHPORT. Sec., Mr. James Spencer, Ormskirk. Entries close the 22nd of July.
AUGUST 19th and 20th. BRADFORD. Secs., Mr. A. Hardy, Bowling Old Lane, Bradford, and Mr. E. Blackburn, Black Bull Inn, Ive Gate, Bradford. Entries close August 12th.

AUGUST 27th. HALIFAX. *Sec.*, William Irvine, Holmfild, Ovenden, near Halifax.
 AUGUST 29th, 30th, 31st, and SEPTEMBER 1st. CRYSTAL PALACE. Poultry, Pigeons, and Rabbits. *Sec.*, William Houghton.
 SEPTEMBER 22nd. BRIDGNORTH. *Sec.*, Richard Taylor, Bridgnorth.
 OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. *Sec.*, Geo. Griffiths, 7, St. Swithin Street, Worcester.

REARING YOUNG POULTRY.

"FOR twenty years I have reared a great number of poultry with much success; in fact, I never had any trouble with them until this year. In January last I took charge of the poultry belonging to the lady under whom my husband holds a situation. Her hens consist of grey and white Dorkings, Cochins, and Spanish, and the crosses of all; but only Dorking cocks.

"Now for my trouble. I brought out about 150 chickens, ninety of which were Dorkings. After they left the shell, about one-fourth never ate a bit, seemed cold, would not go from under the hen, pined away, and died about the third day, except when I crammed them, which added a day or so to their miserable lives. The rest seemed to do well for about eight or ten days, when about another fourth pined away and died. But, what was most extraordinary with the last was, that they seemed lively enough, ate well, but never threw out any more plumage, or grew a bit from the time they came out till they began to pine.

"Well, when about three weeks old the Dorkings and all the crosses took the pip. A few pills of tobacco and crammering when unable to eat generally cured my chickens, but nothing seemed to have any effect on those here. The deaths were dreadful; but the Dorkings suffered most. I tried everything I ever heard of without effect. I knew the cabin people around me reared plenty on the same food—oatmeal dough or stirabout—the only difference was, I boiled, or mixed, for mine, whilst they gave what was left after meals. What could it be then?

"I fortunately thought of salt. I tried it, and am glad to say that all that were not too far gone recovered. I also tried it on two young clutches from the beginning, and only two out of twenty-five took the pip, and that but slightly.

"Well, I had forty-five Turkeys. They thrived well for a month, when one morning I had twenty-seven with swelled heads; in fact, they had a bad roup. As I heard all the Turkeys died here last year, I sent them away to my own home, about a quarter of a mile from here. I did nothing but wash their heads two or three times a-day; gave a pill of tobacco at night, and put a little snuff on their nostrils, and crammed those which could not eat. They all recovered but three.

"Now, what I want to know is, whether the deaths arose from a fault in the food, or in the yard? I told you what the chickens had to eat; the Turkeys were fed on eggs, new milk, chives, and nettles, which I always gave my own, made like an omelet, but boiled for a week. Then, oatmeal boiled in new milk, chives, and nettles.

"There is about a rood of ground enclosed with a wall four feet high, and a paling on the top six feet high. We have two gates which are open all day, so that the fowls can ramble over acres of woodland; the yard is nearly surrounded with trees on three sides, and on the fourth are the buildings, all very good, facing the west. We have plenty of sun from about nine o'clock till three; plenty of shelter, for there are nearly forty trees inside the wall, sixteen of which are very large—laurel, ash, oak, and elm.

"I forgot to say that the full-grown fowls are subject to decline here. I sent ten over to my own house, that I thought could not live a week; eight of them are now well, although their sleeping accommodation is not nearly so good as it is here.

"The Geese and Ducks all did well. We have a pond inside which we can keep fresh."—AN IRISHWOMAN, *Fermanagh, Ireland.*

[We are always pleased to receive such communications as the foregoing; and still more so if we can clear up a knotty point, or advise in a difficulty. Believing that such correspondence as the present is full of instruction, we have printed it entire, and will remark on it as points occur that seem to call for notice.

We never attempt to feed our chickens as soon as they leave the shell for twelve hours, at least; but we often leave them eighteen under the hen without attempting to feed them, and they are the stronger for it. They were, as they seemed to be, *very cold*, and they died of "chill." In our opinion a clean, warm nest is never so much required as when a hen has just hatched her chickens. We always provide one, place all the chickens under the hen, and put food within reach. If the

hatching takes place on a warm, sunny day, we move her into the sun, but we never attempt to treat them as chickens for the first twenty-four hours of their lives; we leave them to the hen. We cannot describe the process—perhaps it is only warmth and hovering, but they do not seem to feed for that period; if they do it is very little. Nor do we ever cram them at that age; it is in reality only labour lost.

Deaths among chickens are very common at about eight or ten days old. It is one of the critical points in their existence. Here the use of stimulants is most successful, and bread and strong ale freely administered will save the lives of thousands that would die without it. In rearing chickens the weather must be considered; and if it is cold and damp, extra nourishment must be given. Chickens will neither thrive nor grow if they are dragged about in the mud, and it is no security to have a proper and dry place for them unless the hen is confined there. If she is at liberty she will drag her chickens to the place that suits her rather than them. The probability is, that the cottagers were more successful, because they allowed the broods to come in-doors, to get to the fire in cold weather, and to have part of every meal. These are the usual causes why the poorer classes, and children of all grades, are what is termed so "lucky" in rearing. The chickens are the first consideration, and they are constantly attended to. We cannot help mentioning here that we were once at a farmhouse where the lady was fond of poultry, but complained sadly she had no place of shelter for her young chickens. Yet in an open grass field, but close to the house, stood six or seven large hay-ricks. Now, we know not a better or a cosier place for ribs with hens and chickens than close under a hay-rick. They can always be shifted to be sheltered from wind or driving rain. They stand on a dry spot full of seeds that fall from the hay; and a better place cannot be desired. The salt appears to have been a happy experiment. We hope we shall have no occasion to try it; but we will do so if necessary.

There is little doubt the Turkeys all took a chill; probably from being out in a cold morning frosty dew, or from a keen east wind and rain: they feel such weather much. The treatment all seems good, except the snuff; we cannot imagine that would help much. The food for them is excellent. We are not friendly to very good poultry-houses, and are not surprised the sickly fowls recovered when removed to a place where the sleeping accommodation is not half so good. Fowls do not like to go round to gates to get out of their yards; and if some small arched openings were made in the wall it would be found they would use the grass land ten times as much as they do now. We should be half inclined to attribute the consumption, of which even the old fowls die, to the pond. Ducks and Geese do not improve the water for drinking purposes; and we have, in many instances, traced disease to pond water poisoned by the leaves which fall into it in autumn and winter, and which, acted upon by a hot sun, becomes most injurious. We knew a yard where no poultry could be kept or reared; but when a small pond was filled up, and clean water substituted for it, poultry did well. There appears to be no fault to find with feeding. It is possible the poultry-houses are not sufficiently ventilated, or if not frequently lime-whited, that they have become stale or tainted. If there is not plenty of dust at hand the fowls are infested by vermin, and that would account for all that has happened.]

NEWCASTLE-ON-TYNE POULTRY SHOW.

THIS Show took place on the 29th and 30th ult. The following is the list of the awards:—

GAME (Black-breasted Red).—First, H. Adams. Second, J. Fairless. Third, G. Hutchinson.

GAME (any other variety).—Prize, J. Charlton.

DORKINGS (Coloured).—First and Third, J. Graham. Second, H. W. B. Berwick.

DORKINGS (White).—First, S. Burn. Second, A. Pease.

COCHIN-CHINA (Buff or Cinnamon).—First, A. B. Cobbold. Second, H. Tomlinson. Third, T. H. Barker.

COCHIN-CHINA (any other variety).—Second, G. Morgan.

HAMBURGH (Golden-pencilled).—First, G. B. Scotson. Second, P. Donaldson.

HAMBURGH (Silver-pencilled).—First, H. Surtees. Second, J. Dixon.

HAMBURGH (Golden-spangled).—First, Messrs. Bird and Beldon. Second, H. Adams. Highly Commended, J. Shield.

HAMBURGH (Silver-spangled).—Prize, Messrs. Bird and Beldon.

POLANDS (Black with White Crest).—First, T. Leonard. Second, Messrs. Bird and Beldon.

POLANDS (Golden).—First, J. Dixon. Second, J. Sim.

POLANDS (Silver).—First, J. Dixon. Second, Messrs. Bird and Beldon.

POLANDS (any other variety).—First, Messrs. Bird and Beldon (White). Second, J. Sim (White).

BANTAMS (Gold-laced).—Prize, W. Sanderson.
BANTAMS (Silver-laced).—Prize, R. Houlding.
BANTAMS (White or Black).—First, F. Calvert. Second, J. Sim.
DUCKS (Aylesbury).—First, A. Pease. Second, J. Price.
DUCKS (Rouen).—First, T. H. Barker. Second, A. Pease.
DUCKS (any other variety).—First, W. Hunter. Second, J. Stephenson.
GESE (Gander).—First, A. Pease. Second, J. Price.
TURKEYS (Cock).—First, J. Price. Second, A. Pease.
COTTAGES.—*Dorkings*.—First, W. Gray. Second, J. Graham. *Game*.—First, J. Graham. Second, J. Bell. *Any other variety*.—Prize, H. Surtees (Silver Hamburgs).

PIGEONS.—*Almond Tumblers*.—First, H. Child, jun. Second, R. Davidson.
Carriers.—First, J. Crawford. Second, F. Mewburn. *Barbs*.—First, J. Crawford. Second, T. Thompson. *Pouters and Croppers*.—First, H. Child, jun. Second, J. Morrell. *Runts*.—Prize, H. Child, jun. *Trumpeters*.—First, Master, A. J. Shorthose. Second, J. Crawford. *Fantails*.—First, Master A. J. Shorthose. Second, S. Irwin. *Jacobins*.—First prize not awarded. Second, J. W. Edge. *Beards or Balbs*.—First prize not awarded. Second, J. W. Edge. *Nuns*.—First, J. W. Edge. Second, J. Crawford. *Turbits*.—First, F. Mewburn. Second, Master A. Shorthose. *Owls*.—First and Second, F. Mewburn. *Any other variety*.—First, T. Thompson. Second, F. Mewburn.

RABBITS.—*Long Ears*.—First and Second, H. Marshall. *Any other variety*.—First prize not awarded. Second, H. Marshall.
 [No prizes were awarded for extra stock.]

MORTALITY IN DUCKS.

"ABOUT a fortnight ago I had a brood of eleven Ducks (Rouen breed), hatched under a hen. When hatched, and for two or three days afterwards, they were all lively and strong, and appeared to be doing well, the weather being warm and sun shining. On the third or fourth morning six of them were found dead under the hen, all being quite well when put up the night before. Two others, without any previous signs of weakness, died the following day almost at the same time. On Friday last I had another beautiful hatch of fourteen, also of Rouen breed, under a Duck; all of which appeared to be doing well till the third day, when five died almost on the same day, and two others being found in a weak state, which have died since. They had a spacious yard, with a small pool of pure running water, with a large airy shed, wherein they were put up at night. The food given to them was oatmeal and bread, moistened with water and given fresh."—AN OLD SUBSCRIBER.

[Mortality in Ducks has been general this year. We believe it has been the worst season on record. The best place to rear young Ducks is an old pigstye, and the worst place is where they have immediate access to water; for this reason a hen rears them better than a Duck. The food is good, but it will be found a better plan to keep them from water for the first fortnight. The cause of the mortality this season has not been discovered. Fine gravel is a good mixture with their food.]

HULL POULTRY SHOW.

THE first meeting of this Society was held in the Zoological Gardens. The entries were very few in number, but included some excellent pens. The Judges were Messrs. Ellitsons, of Thorngumbald; and Mr. D. Pickering for Game. The following is the prize list:—

SPANISH.—First, withheld. Second, D. B. Turner. Highly Commended, W. Glossop.
DORKINGS.—First, W. E. Easton. Second, P. Barnard. Highly Commended, Mrs. Roydhouse. Commended, J. Roydhouse; S. Burn.
COCHIN CHINA (Buff, Lemon, and Cinnamon).—Second, T. H. Barker. Judges' prize, J. Mell, Hull.
COCHIN CHINA (any other variety).—First and Second, D. B. Turner. Highly Commended, R. Tate.
GAME (Black-breasted and other Reds).—First, H. Adams. Second, G. Robinson. Highly Commended, H. Adams; S. Bielby; J. Watson.
GAME (any other variety).—First and Second, H. Adams. Commended, J. Gawan.
HAMBURGH (Gold and Silver-pencilled).—First, G. Simpson. Second, H. Hodge, jun. Third, J. Falkiner.
HAMBURGH (Gold and Silver-spangled).—First, H. Adams. Second, H. W. B. Berwick. Third, D. B. Turner.
POLANDS (Black with white Crests).—First, S. Holloway. Second, S. Robson.
POLANDS (any other variety).—Second, J. Ashton. Third, H. Huffam.
ANY OTHER PURE BRED.—First, W. Sherwood. Second, W. Dawson. Mirfield. Highly Commended, S. Holloway.
ANY FARMYARD CROSS.—First, R. Robson. Second, W. Rime.
BANTAMS (Gold and Silver-laced).—First, D. B. Turner. Second, R. Wear. Third, T. Haley.
BANTAMS (any other variety).—First, R. Dring. Second, J. Crosland. Third, Miss M. R. Turner. Highly Commended, R. R. Ridsdale. Commended, R. R. Ridsdale.
SINGLE COCKS.—*Spanish*.—Prize, G. Charter. Highly Commended, J. Milne. *Dorking*.—Prize, J. Roydhouse. Highly Commended, P. Barnard. *Cochin*.—Prize, G. S. Simpson. Highly Commended, E. Southwick.

Game.—First, D. Pickering. Second, R. Field. Highly Commended, R. Stephenson; J. Gawan; J. T. Johnson; T. Fitzmaurice; J. Taylor. *Gold or Silver-pencilled*.—Prizes withheld. *Gold or Silver-spangled*.—First, D. B. Turner. Second, J. T. Johnson. Highly Commended, W. Dyson. *Any other variety*.—First, J. Hecson. Second, R. Tate. Third, S. Holloway. *Laced Bantams*.—First, T. Haley. Second, J. T. Johnson. *Any other Bantams*.—First, Miss M. K. Turner. Second, J. Crosland. Highly Commended, W. W. Boulton; R. Tate.

GUINEA FOWLS.—First, H. Hodge, jun. Second, J. Taylor, jun. Highly Commended, H. Hodge, jun.

DUCKS.—First, S. Burn. Second, A. A. Young. Third, R. R. Ridsdale. **SINGLE GAME COCK**.—First, J. Clayton. Second, H. M. Julian. Third, H. Adams. Fourth, H. M. Mosey. Highly Commended, R. Tate.

EXTRA STOCK.—First, E. Southwick; W. Taylor. Second, T. Hutchinson; G. Simpson.

PIGEONS.—*Carriers*.—First, J. H. Oglesby, jun. *Pouters or Croppers*.—First, W. H. Richardson. Second, S. Robson. *Almond Tumblers*.—First, J. H. Oglesby. Second, W. H. Chaffer. *Tumblers*.—First and Second, D. B. Turner. *Barbs*.—Prize, W. H. Richardson. *Jacobins*.—First, W. E. Easton. Second, H. Key. Highly Commended, H. Boddy. *Nuns*.—First, J. H. Oglesby, jun. *Owls*.—First, R. Tate. Second, J. H. Seaton. Highly Commended, D. B. Turner. *Fantails*.—Prize, J. Turner. *Any other variety*.—Prize, W. H. Boddy.

RABBITS.—*Best Buck*.—First, W. W. Boulton. Second, T. Rousby. *Best Doe*.—First, W. W. Boulton. Second, T. Rousby. Highly Commended, J. Fearn. *Best Pair*.—First, T. Rousby. Second, D. B. Turner.

TOADS LIVING WITHOUT AIR.

I MENTIONED in the last volume some particulars concerning toads living without air, and stated that I buried six in separate air-tight flower-pots, about two feet deep underground for fully two months, and found only two of the reptiles alive, one of which had an air-pipe. I tried the same experiment on the same toads, after they were torpid, but without the air-pipe, and found them both dead on the 4th of March. This, and what I previously stated about those harmless reptiles, goes much against the common belief of their living hundreds of years in air-tight cavities. But in the face of these there seem many undeniable facts; for it is mentioned in the "Encyclopædia Britannica," art. *Animal Kingdom*, that the celebrated John Hunter enclosed a toad between two stone flower-pots, and found it as lively as ever after fourteen months. Buffon says, with reference to toads living for centuries enclosed in rocks, or trees:—"Stories of this kind it would be rash to contradict as difficult to believe. We have the highest authorities bearing witness to their truth, and yet the whole analogy of nature seems to arraign them of falsehood. Bacon asserts that toads are found in this manner. Dr. Plot asserts the same. There is, to this day, a marble chimney-piece, at Chatsworth, with the print of the toad upon it, and a tradition of the manner in which it was found. In the 'Memoirs of the Academy of Sciences,' in the year 1719, there is an account of a toad found alive and healthy, in the heart of a very thick Elm, without the smallest entrance or egress. In the year 1731 there was another found near Nantes, in the heart of an old Oak, without the smallest issue to its cell." Mr. T. Whiston testifies to what he saw at Wisbeach, about the year 1743, a live toad which had just been found in sawing a block of marble, by a stone-cutter named Charlton. The account may be seen in "The New Magazine of Choice Pieces," by J. Parry, 1810. It is followed by another instance which occurred at Great Yarmouth, on the 14th of June, but the year is not specified. John Malpas here testifies that he took a live toad out of a solid freestone, brought from Rutlandshire. He strictly viewed the stone, but could not perceive any flaw, or crack, in it. This is also attested by a mason, Peter Hurford, who saw the toad alive.

Many other such facts may be cited. But as Professor Bell observes:—"To believe that a toad, enclosed within a mass of clay, or other similar substance, shall exist wholly without air, or food, for hundreds of years, is certainly a demand upon our credulity which few would be ready to answer."—J. WIGHTON.

OUR LETTER BOX.

ESSEX POULTRY SHOW.—In the comments on this Show, in your paper of last week, you say—"Mr. Boghurst also showed some excellent Buenos Ayrean Ducks." Now, instead of Mr. Boghurst having shown some excellent Buenos Ayrean, he did not show any Buenos Ayrean at all, but took second prizes with a pen of Call Ducks, and I, you will see on referring to the prize list, obtained the first prize with a pen of Buenos Ayrean, or East Indians. Now, in calling these birds Mr. Boghurst's, I really do not think you do me or my ducks justice. Therefore, I think you cannot do less than correct this mistake in your next paper. I do not of, course, think this mistake was intentional on the part of your reporter.—GEO. SAUNDERS SAINSBURY, Rowde, Devizes.

[We readily make the correction, and we are sure our reporter will join us in regretting the mistake.—EDS.]

WEEKLY CALENDAR.

Day of M th	Day of Week.	JULY 12—18, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon R. and S.	Moon's Age.	Clock bef. Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
12	Tu	Mahernia verticillata.	30.051—30.000	81—57	W.	—	58 af 3	12 af 8	52 0	12	5 14	193
13	W	Virgila lutea.	30.007—29.965	77—56	S.W.	.02	59 3	11 8	43 1	13	5 22	194
14	Th	Veronica salicifolia.	29.951—29.856	84—52	S.W.	—	IV.	10 8	46 2	14	5 29	195
15	F	Solanum jasminoides.	29.791—29.760	90—57	S.W.	.16	2 4	9 8	rises	☺	5 35	196
16	S	Tropæolum pentaphyllum.	29.897—29.823	83—51	S.W.	.18	3 4	8 8	4 a 9	16	5 41	197
17	SUN	4 SUNDAY AFTER TRINITY.	29.990—29.977	84—41	S.W.	.20	4 4	7 8	19 9	17	5 47	198
18	M	Mimetes divaricata.	30.110—30.016	83—45	S.W.	.01	5 4	6 8	30 9	18	5 52	199

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 75.3° and 51.3°, respectively. The greatest heat, 93°, occurred on the 14th, in 1847; and the lowest cold, 40°, on the 17th, in 1856. During the period 134 days were fine, and on 90 rain fell.

THE great Kensington Gore scheme of the HORTICULTURAL SOCIETY has at last been made known, and the Fellows and the public are now in possession of all the particulars relative to this vast undertaking. A Meeting was held in the house of the Society of Arts, Adelphi, last Thursday, when a large gathering of the most influential Fellows of the Society assembled to hear the statement from the Council. A full report of the Meeting will be found in another portion of this paper; and we need not, therefore, enter into any particulars as to the scheme itself, further than to say that it is one which the Fellows of the Society who are interested in the advancement of horticulture, and in preserving the legitimate objects for which the Society was instituted and its charter obtained, should regard with great caution, and not allow themselves to be hurried into it without having some security or assurance that these objects will be maintained.

There are two aspects in which this great outlay of money and heavy responsibility are to be regarded. The first is, as the means to an end; and the second—which in our opinion, is by far the more important—its bearing upon horticulture. As regards the first of these aspects, as a means for raising money, which it is said is intended to be devoted to the advancement of horticulture, we think that the plan will be successful, great as the amount required assuredly is, provided advantageous terms can be made with the Royal Commissioners as to the length of the lease. The spirited way in which the scheme has been taken up by HER MAJESTY and the Court is almost a guarantee that, as a commercial speculation, it will meet with public support; and the way in which it is intended the new garden is to be laid out and applied bears on the face of it a fair prospect of success. But what we, as horticulturists, want to know and be assured of is, the bearing that all this will have on horticulture and the Horticultural Society as it was originally constituted; and this brings us to the consideration of the second aspect in which we are to regard this movement.

There is no doubt in the minds of those who have given any attention to the subject, that the decline of the Horticultural Society has been brought about by a lavish, unremunerative expenditure, and culpable mismanagement. We have never heard but this one opinion expressed among horticulturists. By such courses the Society is brought to the verge of bankruptcy, its energies

paralysed, and its operation has become effete. To raise it from this state of positive inanition, great changes are necessary, and ample funds must be provided. Believing as we do that the Kensington Gore movement will be productive of a considerable income, we are of opinion that if that income be faithfully applied to the development of the objects originally contemplated by the founders, the Society will again take a respectable position among the great institutions of the country. But this end is not to be effected in the ornamental garden and fashionable promenade at Kensington Gore. The real working and telling effect of the Society must be carried out elsewhere; and before we give our entire and cordial support to the scheme now proposed, we must, for the Fellows of the Horticultural Society, have an assurance that the garden at Chiswick will be maintained in its integrity. It is well known that the present intention of the Council is to give up a portion of that garden which embraces the arboretum, and part of the orchard, including the large conservatory. The respectable entrance from the "Duke's Road" has already been closed as a preliminary step, and visitors to the garden are compelled to enter by a miserable back lane, which is both unattractive and inconvenient. Now, when the Council are prepared to enter upon a plan involving an outlay of £50,000, with the prospect of realising an income, which, according to their own estimate, will amount to £17,000 a-year, we really think that in curtailing the Chiswick garden on the ground of economy, they are "straining at a gnat and swallowing a camel." To carry out the whole objects of the Society, the entire garden is absolutely necessary; and if, as it is intended, there is to be an Arboricultural Committee formed,—and a very important Committee it will be,—the arboretum will then be required.

We do most earnestly hope the Council will see that it is for the interest of the Society that the course we have pointed out should be followed; and we have no doubt if they will give an assurance by some such act that this great movement is not so much the formation of a great West End promenade, as the greater development of the usefulness of the Society, they will have the cordial support of the Fellows and the whole horticultural community. If, however, they give no such assurance, the whole of the present proceedings must be regarded as nothing more than a great commercial speculation got up under the wing of the LONDON HORTICULTURAL SOCIETY, but too little regarding the objects for which the Society was founded.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

IF any of the stove plants, as lately recommended, have been brought into the conservatory, they will require a free admission of air at every favourable opportunity to keep the atmosphere of the house dry. The plants must be kept clear of decaying leaves and flowers. Some judgment is also required in watering recently repotted plants, that they may not be injured by saturation in cloudy weather, nor by drought in hot sunny days.

The growth of twiners should be carefully regulated, allowing them sufficient freedom to develop their natural habits as far as other considerations will permit.

Continue to shift the hardwooded plants as they require it. A turfy compost of three-parts sandy heath soil of a fibrous and rather lumpy character, and one-part loam, will suit the majority. Particular attention should be paid to the drainage, more especially to the crook at the bottom; for if that is flat, and not hollow, it matters but little how much depth of drainage material rests upon it, the soil will soon become saturated and sour. Remember that the final shift should be given in good time to those intended to flower in the autumn.

CHRYSANTHEMUMS.—Continue to top the plants that have been planted out in the open ground.

GARDENIAS.—If any have been removed to the conservatory while in bloom they should be returned to heat as soon as the bloom is over, to encourage growth and to allow them sufficient time to mature their growth.

WINTER FLOWERS.—The Cinerarias, Chinese Primroses, Heliotropes, Perpetual, Tea, and other Roses, will require frequent and diligent attention as to watering, shifting, &c.

STOVE AND ORCHID-HOUSE.

Give immediate and regular attention to the young stock of stove plants intended for winter blooming. Keep up a moist temperature at all times; with air during the day. When a few days of gloom occur, the humidity that sometimes becomes stagnant and injurious should be dissipated by a free circulation of air when bright weather returns. Keep a free circulation of air amongst the Orchids by day; endeavour to supply an abundance of atmospheric moisture during the latter part of the day; and dispense with shading as much as possible by using it only during a few hours of the hottest part of the day.

FORCING-HOUSES.

FIGS.—Supply with plenty of water the roots of the trees that are swelling their second crop; ply the syringe frequently amongst the foliage, and sprinkle the paths, &c., to keep the atmosphere moist. Shut up early in the afternoon. As the fruit of the first crop ripens, curtail the supply of atmospheric moisture—otherwise before they reach maturity they are apt to turn mouldy. The roots to be regularly supplied with water, and some liquid manure added about once a week to assist the second crop. Keep down red spider by the application of sulphur in the manner so frequently advised of late.

PEACHES.—The fruit will be all the more delicious for a comparatively cool temperature while ripening. Examine the fruit daily, and gather before it is over-ripe and loses its flavour.

PINES.—Maintain a good bottom heat, and encourage the growth of the advancing crop by kindly humidity and allowing them plenty of air and sufficient space from plant to plant. Give air, also, freely to the young stock in dungpits, to secure strong stocky growth; but a circulation should not be allowed by giving back and front air at the same time during hot drying winds. Attend to former directions to afford the plants swelling their fruit a moist atmosphere by frequent syringings and by sprinkling the paths and every other available surface

until the fruit begins to change colour, when the atmosphere and soil should be kept rather dry, to improve the fruit's flavour.

VINES.—Keep up a brisk heat to the late Grapes during the day, as it is advisable to get them well ripened before the season gets too far advanced. By such means they will be of better quality and keep longer than if the ripening process be delayed to a later period. Do not allow plants in pots to remain in the house to cause damp, which, despite every care in ventilating, is apt to settle on the berries and spoil them.

WILLIAM KEANE.

HORTICULTURAL SOCIETY OF LONDON.

PROPOSED NEW GARDENS AT KENSINGTON.

ONE of the most important meetings that has ever taken place since its establishment was held by the above Society, on Thursday, the 7th inst., in the theatre of the Society of Arts, Adelphi, to consider a proposition which has emanated, we believe, from the Royal Commissioners of the Great Exhibition of 1851, for the construction of a grand horticultural garden on a plot of ground in the possession of the Commissioners at the above locality. It will be recollected by our readers, that some few months ago, in the spring of the present year, it was proposed to erect a building in which to hold another Great Exhibition in the year 1861. In consequence of the disruption of European relations, and the subsequent fearful war between two of the great continental powers, which unsettled the political balance of so many friendly states, the idea was abandoned as being impracticable during the existing condition of public affairs. The sweet, heaven-born voice of the Angel of Peace was not likely to be heard or attended to amid the fierce clamours and thunder-shocks of devastating war. The ground upon which it was intended to have repeated the "World's-Fair" experiment of 1851 is a plot of about twenty acres, lying between the Kensington and Brompton roads, and forms a portion of the estate which was purchased by the Royal Commissioners out of the surplus proceeds of the Great Exhibition, and upon part of which the Museum of Science and Art stands. As the land was idle, some fertile brain suggested the application of it to a grand horticultural summer and winter garden, in the very centre of the town residences of the nobility and gentry of the land; and yet within easy access of, and upon terms that will admit the poorest working man and his family. It was to consider this project that the members of the Horticultural Society were assembled on Thursday last, and we regret (whether from the shortness of the notice or otherwise) there was such a small attendance—by no means commensurate with the importance of the subject; but, as an adjournment has taken place, we trust on the next occasion to see the members muster in much greater force.

The walls of the theatre were tastefully decorated with very elegant drawings and photographs of almost every variety of arcade, terrace, esplanade, and entrance, existing or imaginative, so that the Council will have a perfect *embarras de recherche* from which to select a suitable design. But we are anticipating. Our readers will be better able to judge for themselves, by the perusal of the lengthened interesting report of the whole proceedings which we have had prepared by a gentleman specially engaged to represent THE COTTAGE GARDENER on the occasion.

The chair was occupied by the Right Hon. the Earl of Ducie, and amongst the noblemen and gentlemen present were his Grace the Duke of Leinster, Sir John Ramsden, Sir Peter Pole, Dr. Lindley, Mr. R. Hogg, Mr. Dilke, Mr. Cole, Mr. Wilson Saunders, Mr. Charlwood, Mr. Pownall, Mr. Heywood, Mr. Holmes Godson, Mr. H. G. Bohn, Mr. Wrench, Mr. Frederick North, Colonel Challoner, Mr. Cox, &c.

In order that those present might have an opportunity of fully understanding the question, the Council of the Society issued the following report, explanatory of the whole subject, a copy of which was placed in the hands of each member who was in attendance.

REPORT OF THE COUNCIL ON THE PROPOSED NEW GARDEN AT KENSINGTON GORE.

"It is scarcely necessary to recur to the reasons which led the Council to the conclusion that it was inexpedient to continue the annual exhibitions at Chiswick. Successful and attractive as those exhibitions once were, it seemed evident to the Council that it would not only be to the pecuniary advantage of the

Society, but that their means of usefulness as a scientific body would be greatly extended if they could obtain sufficient space for the prosecution and development of their objects in the more immediate neighbourhood of London.

"In seeking for such a situation, the attention of the Council was naturally attracted to the finely-situated estate purchased by the Commissioners for the Exhibition of 1851 out of the surplus proceeds of that Exhibition; and it appeared to them that the grant by the Commissioners of a certain portion of that estate to the Society would be strictly compatible with, and might even tend largely to promote, the means of encouraging Art and Science generally, the furtherance of which was known to be the object for which the Commissioners were incorporated by Royal Charter.

"The Council of the Society, therefore, some time since made an application to the Commissioners of 1851, in order to ascertain how they would be disposed to regard a request from the Horticultural Society for permission to establish itself upon their estate.

"The Commissioners have met this request in a liberal spirit.

"After letting on building-leases certain outlying portions of their estate, the Commissioners have reserved about fifty acres for the purposes of their incorporation, forming a parallelogram between the two new roads: Prince Albert Road (one hundred feet wide) to the west, and Exhibition Road (eighty feet wide) to the east: which two roads connect the Kensington Road on the north, with the new Cromwell Road (eighty feet wide) on the south. Of this parallelogram, the Commissioners have reserved a portion of about sixteen acres at the south end for the purposes of the Great International Exhibition, which had been projected by the Society of Arts for the year 1861—the intention of holding which has, it is hoped, been but temporarily suspended by the war now unhappily raging; also, a portion at the north end, with a frontage to Hyde Park, well adapted for any public buildings which it may hereafter appear desirable to erect there; and further spaces of about 150 feet in depth along each of the parallel roads running north and south, for such buildings, public or private, as the Commissioners may hereafter, in the prosecution of their own objects, determine to erect.

"It is the remainder, or centre, of this ground that the Commissioners, under certain conditions, have offered to place at the disposal of the Horticultural Society. This space, inclusive of a proposed winter garden, and also of Italian arcades, with which the Commissioners themselves propose to surround it, will contain about twenty acres available for the new garden of the Society.

"The conditions on which the Commissioners have made their liberal offer will be communicated in the course of the Meeting. The main provisions are, that the Society shall engage to lay out and maintain the garden in a fitting style, and that it shall also erect a conservatory or winter garden—the whole at a cost estimated at £50,000; and should the offer be accepted, the Commissioners will be prepared to grant the Society a lease of the ground for thirty-one years, and further, as before stated, to surround, at their own expense the space allotted for the garden, with Italian arcades open to the grounds, and built at their own expense, at an estimated cost of £50,000; the conditions as to the payment of interest on any sum so expended not exceeding £50,000, and as to the amount of rent to be paid by the Society, being of the most liberal nature.

"The great advantages of the site proposed are obvious. The garden will be in the immediate neighbourhood of Hyde Park and Kensington Gardens, and in the very centre of a new and rapidly rising town of first-class houses, which bids fair to become one of the most popular and fashionable districts in London. The shape and situation of the ground, which slope gradually from the north to the south, admit of the formation of successive terraces on different levels, affording peculiar facilities for effective and ornamental treatment, and are well adapted besides for the effective display of sculpture; while a fine winter garden at the upper end, and a colonnade extending round it, will afford a promenade of three-quarters of a mile in length, sheltered from heat and cold, wind and wet. The colonnade will also offer peculiar facilities for the display of the flowers and fruit at the annual shows, free from all those risks of weather which have not unfrequently marred the Chiswick fêtes.

"Bearing all these advantages in mind, the Council have no manner of doubt that, with the hearty support and co-operation of the Royal Commissioners which have been so liberally pro-

vided to them, they will be enabled, while keeping steadily in view the scientific objects of the Society at Chiswick, to make this garden, with the periodical exhibitions which they propose to hold in it, one of the most attractive places of popular resort in the neighbourhood of London; and they will have the satisfaction of knowing that they have provided for the metropolis a place for healthful recreation during the more inclement season of the year.

"Plans and designs for the winter garden, and for laying out of the ground, as prepared and agreed upon in conjunction with the Royal Commissioners, are now hung up in the great room of the Society of Arts, John Street, Adelphi, and a careful estimate of the probable cost has convinced the Council that, as at present prepared, these plans may be carried into effect for the sum named. But it should be borne in mind that the more liberal the support which the Society shall meet with, and the nobler the scale on which the designs for this garden are framed and executed, the greater will be the prospect, not to say the certainty, of a successful and remunerating result.

"Should the General Meeting adopt the views of the Council, the question will then arise as to the mode of raising so large a sum as £50,000.

"The Council believe that this may be effected by the issue of a certain number of life memberships; but as the success of the undertaking will in some measure depend upon the vigour with which it is undertaken—and it is of importance that the works should not be any way delayed in their completion if once determined on—it will be requisite to obtain the money immediately required for the progress of the works by the issue of debentures, bearing interest at 5 per cent., to be redeemed as the receipts from life memberships become available. Donations in aid of the undertaking will at the same time be thankfully accepted by the Council; and they will be prepared to extend to the donors of sums exceeding twenty guineas privileges similar to those possessed by members. Had the Council been inclined to make the project a mere commercial speculation, and to place it in the hands of a company, there is little doubt that thrice the sum now demanded would have been speedily obtained. But the Council felt that such a course would have been derogatory to the character and objects of the Society; nor would the support and co-operation of the Royal Commissioners of 1851 have been extended to such a mere money-speculation. They, therefore, prefer resting their hopes of success in the course proposed, and in the desire which will be generally felt to promote the accomplishment of a scheme so advantageous to the Fellows and the public, and so conducive to the important objects for which the Society was chartered; and they entertain no doubt that their confidence in the support of the public will be justified by the result.

"The Council propose to keep up the experimental part of Chiswick Gardens, and also so much as may be required to furnish decorative plants for the new garden at Kensington Gore."

The noble PRESIDENT, in opening the proceedings, alluded to the decline of the Society, and the necessity that existed for its improvement, and in doing so entered into a brief recapitulation of the history of the Society from its establishment. He referred to the purpose for which they were called together, and urged the desirability of accepting the offer of the Royal Commissioners to grant upon such reasonable terms the plot of land in the vicinity of Kensington. He thought that the establishment of such gardens as those proposed would tend to resuscitate the Society from its present depressed condition. There was a general endeavour on the part of the friends of horticulture to do so, and it was well known that Her Majesty the Queen and His Royal Highness Prince Albert took a great interest in it. The matter had been well considered by the Council; and Dr. Lindley, the Secretary, would detail in full what it was proposed should be done upon the subject, with the concurrence of the Society.

Dr. LINDLEY commenced by drawing the attention of the Meeting to the appropriateness of the intended site, where the residences of the higher classes were concentrated together; and in point of access from all parts, for such a purpose he thought it would be difficult to find a situation so desirable. The Council had been in communication with the Royal Commissioners since January last, who wished to know if the Society would form a new garden upon the ground placed at its disposal. A Meeting of the Council was held at Buckingham Palace, at which His Royal Highness the Prince Consort presided, and His Royal Highness thought that it was a proposition of sufficient im-

portance to be discussed by the Society at large. A letter, of which the subjoined is a copy, was accordingly despatched by him (Dr. Lindley) to the Royal Commissioners:—

"Horticultural Society, 21, Regent Street, S.W.

"Sir,—I am directed by the Council of this Society to ask you whether Her Majesty's Commissioners for the Exhibition of 1851 would be willing to receive a proposition for renting the middle of the block of land lying between the Kensington, Cromwell, Exhibition, and Prince Albert roads? and if so, upon what terms? Could such land be leased to the Society for a garden at a moderate rental for a long term of years, the Council would be prepared to bring the subject before a General Meeting, for the purpose of ascertaining the views of the Society; the Council considering that it would be to the interest of the Society to have their Show Garden at South Kensington, and their Experimental Garden in some other locality.—I am, Sir, your very obedient servant,

JOHN LINDLEY, Sec.

"Edgar Bowring, Esq.,

"Secretary to the Royal Commissioners of 1851."

To that letter the Commissioners replied through their Secretary to the following effect:—

"Whitehall, July 4th, 1859.

"Sir,—I am directed by Her Majesty's Commissioners to acknowledge the receipt of your letter of the 26th January last, inquiring on behalf of the Council of the Horticultural Society whether the Commissioners would be willing to receive a proposal from the Society for renting the central portion of the main square of the Commissioners' estate at Kensington Gore, and if so, upon what terms. Her Majesty's Commissioners direct me to acquaint you in reply, for the information of the Council of the Society, that they have delayed answering this communication up to the present time because of their anxiety to give the proposal in question all the consideration which its importance deserves, and to investigate how far its adoption could be made to contribute towards the development of the general objects for which they are incorporated. The result of their inquiries has been to satisfy them that the proposal of the Society offers opportunities of realising a plan worthy of the metropolis and advantageous to the public; whereby, on the one hand, the special science of horticulture may be advanced, and on the other the general interests of science and art promoted. The Commissioners accordingly contemplate setting apart for this purpose the central portion of the main square of the estate, as desired by the Society, to the extent of about twenty acres, and enclosing that area by arcades of an architectural character. As respects the purposes to which the above-mentioned enclosed space and arcades should be respectively applied, so far as relates to the use to be made of them by the Society, the Commissioners consider that the ground should be laid out as an ornamental garden, with the necessary accompaniment of terraces, steps, fountains, &c., and with the addition of a conservatory or winter garden at the north end, the whole to be executed in conformity with plans approved by the Commission; whilst the arcades would afford at all times a protection from the weather to the visitors of the gardens, and the upper portion of them afford a most favourable site for the flower shows of the Society. The arcades, whilst being complete in themselves and enclosing the gardens, would at once serve to unite into a harmonious whole any buildings that may be hereafter erected between them and the main roads of the estate in furtherance of the general objects of the Commissioners, and to secure those gardens against any future interference or encroachment, as the Commissioners' objects just referred to are gradually developed. The cost of executing the whole of these works, so far as it has yet been possible to estimate them, would be £100,000, a moiety of that sum representing the cost of the arcades and of the earthworks, and the other moiety the cost of erecting the conservatory and laying out the grounds as before mentioned. In the event of the Horticultural Society being willing to incur the expense of the latter, or horticultural portion of the works, and succeeding in raising the requisite amount within a period of six months from the present time, Her Majesty's Commissioners will, on their part, be disposed to execute at their own expense the former or architectural part, together with the earthworks necessarily preparatory to the laying out of the gardens. The Commissioners will also be prepared, in the event of the Society agreeing to the above proposed division of the contemplated works, to grant to the Society a lease of the twenty acres in question for a period of thirty-one years, subject to the payment by the Society to the Commissioners, of an annual rental

on the following basis:—The rent to be ascertained with reference to the receipts of the Society in each year—that is to say, There should be first deducted from the sum of the gross receipts (1) such a sum as shall be allowed by a Committee hereinafter mentioned in respect of expenses; and (2) the amount which may be payable by the Society for interest of any money not exceeding £50,000, borrowed by them for the works on the land. The rent shall be in the first place a sum equal to the interest payable on any principal money not exceeding £50,000, which may be borrowed by the Commission, and expended on works on the land, or so much of this interest as the surplus receipts after the allowed deductions amount to. And if the surplus exceed this interest, a further sum equal to a moiety of the residue. For the purpose of regulating the amount to be deducted by the Society in each year for expenses, a committee of six persons shall be annually appointed, three by the Society, and three by the Commission, such committee to select the chairman from among the three nominees of the Commission, the chairman to vote on all occasions, and in case of equality of votes to have a casting vote in addition. Her Majesty's Commissioners, bearing in mind their responsibility towards the Crown and their public duty, feel it incumbent upon them further to stipulate that a general veto with regard to the management of the ground leased to the Society shall be reserved to the Commission; at the same time it is to be understood that the terms above specified are subject to be modified in such manner as shall be deemed necessary by the legal advisers of the Commission, to prevent the implication of a partnership between the Commission and the Society. In the event of the Horticultural Society being prepared to assent to the general principles above indicated, it will afford Her Majesty's Commissioners much pleasure to confer with the Council of the Society for the purpose of settling the details of an agreement upon that general basis.

"I have the honour to be, your obedient servant,

"Dr. Lindley, F.R.S." (Signed) "E. A. BOWRING."

With reference to one or two points in that letter, it would be as well to direct attention to them, as they were very important. In the first place, with regard to that important matter, rent. Well, there was no rent to be charged. In the first place the Society would be permitted to pay its whole expenses out of its income, which expenses may include the interest on any money that might be borrowed by debenture or otherwise, before the question of rent came to be considered at all. So far so good. The Royal Commissioners had stated, that if the surplus, after the payment of all the Society's expenses, should be £2000, then that was to be the rental; they would take the £2000. If it be £500 only, they would take it, and if it be nothing at all they would have nothing for rent. If, on the other hand, the profits exceeded the £2000, then the Commissioners and the Society were to share what was left equally between them. The rental of £2000 was fixed by the Commissioners as the interest they would have to pay upon money to be borrowed at 4 per cent., to meet the Society in the share of the expenditure for constructing the gardens. They were to be £50,000, and the Society was to be £50,000. Another important point was, that there was to be no back rent: each year would clear itself. If the rent were £2000 a-year, and the Society could only pay £500 out of its profits, then that was to be the rent for that year, and it was not to go on accumulating to the next, for they were never to be charged with arrears of rent. It was only on that ground that the Commissioners could justify sharing the profits beyond the £2000, when such profits arose, so that there was no risk whatever. In the proposed gardens it was intended to have ample promenades under arcades, where people could see the flowers and plants even in wet weather, and not be subjected to the risks they experienced at Chiswick by storms, which materially affected their receipts. The Commissioners claimed a veto in management, on the ground that if the gardens did not answer, it should not be in the power of the Society to turn them to any improper use other than what the Commissioners would sanction—such as Cremorne, for instance, although they were quite sure that no gentleman connected with the Horticultural Society would ever think of such a thing; but it was to prevent the possibility of the question being started at any future period, however remote.

The last paragraph of the letter, which he would read again, was very important.

"In the event of the Horticultural Society being prepared to assent to the general principles above indicated, it will afford Her Majesty's Commissioners much pleasure to confer with the

Council of the Society, for the purpose of settling the details of an agreement upon that general basis."

Having laid that letter before them, he could not do better than illustrate the proposed scheme by a general kind of plan which they saw upon the wall. He then directed the notice of the Meeting to an outline-plan, the particulars of which could not be understood without an illustration. He then went on to say—It is intended that statuary, at some time or other, should be placed in suitable parts of the gardens; but that was not a necessary part of the plan, nor was it anything with which they had to do, as it was not to be at the expense of the Horticultural Society, nor was it to be put so as to crowd, or in any way interfere with, the general arrangements of the plants, but as an additional attraction, as there was no such place at present in London; and that would be an addition by the Royal Commissioners. The room was hung round with photographs and drawings of beautiful designs both for entrances, arcades, and terraces, and, no doubt, the Commissioners would choose from among them that design which might be considered the best. The arcades would be sixteen feet high in the clear, and access to them would be had by covered ways from more than one direction, so that carts arriving with necessary plants and materials will be able to do so and leave without in any way disfiguring the gardens. Another part of the Commissioners' letter stated that there would be a winter garden as well. It was proposed that it should be a great conservatory, covering something less than an acre of ground. It was not proposed to make it a hothouse for plants that required another climate, but to confine it entirely to such as grew in a greenhouse, and only required shelter from the weather. There were to be three levels, or terraces, and the visitor on entering the gardens would pass from one level to another; each, of course, having a different character of plants growing on it. There would be an advantage in the upper level—that the roofs of the arcades of the lower one would constitute an approach so as to enable persons to walk straight on to it. This would be easily effected, as the whole of that land between Kensington and Brompton slopes very rapidly to the southward.

Dr. LINDLEY again referred to the drawing on the wall, and continued—With respect to ornamental water, he could comfort them so far as to say that there would be a grand display, but nothing in the shape of "waterworks," as that could be seen on a greater scale than they could attempt, elsewhere. It was said there would be a great difficulty to carry out a garden in a place like Kensington Gore, as they could not preserve certain plants there. Well, he did not believe there was half the difficulty which was stated. With respect to the badness of the atmosphere, to be sure there were plants that would not grow there, but the application of the skill of modern gardening would do a great deal to overcome that. It was intended by the Council to retain a portion of the grounds at Chiswick, where experimental operations might be carried on, and plants prepared for being sent to Kensington. The continuance of the Chiswick garden would be a part of the expenses of the Society which the Royal Commissioners would be obliged to recognise. The next question was the *quo modo*—how was it to be done? In the first place, 'What is the probable cost of managing these gardens?' He would state what they had estimated the outside to be, including, too, £1000 a-year for the maintenance of Chiswick. It appeared to be the opinion, after due consideration by the gentlemen of the Council, that that would amount to £9,400 a-year, which would also include the £1000 for the management of Chiswick, and another £1000 a-year for contingent expenses,—such as bands, police, &c. With regard to income, it was difficult to form an estimate; but looking at the income from similar places in London, and other great towns, the principal source of income would be at the doors; Fellows of the Society would, of course, be exempt from paying at the entrances. Such gardens as those would naturally excite a great desire to see them. The Royal Commissioners were of opinion that the Council should not look too narrowly on the question of admission, and that the great mass of the public should be admitted in the most favourable manner. On Mondays the price to all persons would be 3d.; on Tuesdays, 6d.; on Thursdays and Fridays, 1s.; and on Wednesdays and Saturdays, 2s. 6d. On the three months in the year during the fine weather, a band should play every Monday, Wednesday, and Saturday, and during the Easter and Whitsuntide holidays it would also play. Making allowance for bad days, which in this country must be counted as one in five, and taking this as the basis for receipts at the doors, it was calculated that £1200 a-year would be de-

rived from the 3d. on Mondays; £150 from the 6d. on Tuesdays; £150 on Thursdays and Fridays; £1500 on Wednesdays, from the band playing; and £1600 from the higher-priced admission on Saturdays—the half-crown days, whilst the holiday times were expected to yield £600 a-year. The average receipts at Chiswick for the six years from 1848 to 1853, were £4000 a-year. Botanic Gardens in 1858 were £1800. The Crystal Palace, for the three years from the beginning of 1856 to the end of 1858, were, on an average, of £4200 at the doors. It was not unreasonable to suppose that the sum of £5000, from the flower shows alone, and the present income of the Society of £2700, would be continued, in addition to which they expected to considerably increase their receipts by the issue of season tickets at four guineas and two guineas each, and children at half-a-guinea, which would bring the income up to about £7,875 more. Supposing it did not diminish, but on the contrary increased, by the admission of new members, wealthy persons, &c., as it would by being in a wealthy neighbourhood, they would be in good circumstances. There would be an outlay of £9400, and an income of £17,475, which would leave a balance in favour of receipts of £8,075. The £1000 for incidental expenses would be for police, bands, &c. Such were the results, if that estimate could be taken as ascertained; it had been very carefully prepared, and was now left to the Meeting to consider. He looked upon the income as being placed too low, and the outlay as too high. If the profits were £3000 a-year the Royal Commissioners would have to allow out of that whatever was necessary to pay the interest on any debenture stock that may be out, and then there would be £3500 a-year to divide between the Royal Commissioners and Horticultural Society, which would leave £1750 a-year each. It is not at all represented what the Society would receive from the interest which great personages would take in it. Perhaps Her Majesty might come and view it, and be followed by all that influence which generally surrounds a Court. On such occasions the Council would, of course, arrange the prices of admission on a scale commensurate with the importance of the occasion, when the returns would no doubt be very large, and would totally change the character of the whole future income of the gardens, upon which the estimates stated had been based. As to the mode of dealing with this £50,000, he could not, perhaps, say how that was to be done; but he supposed the Council would go on issuing life subscriptions—although nothing was settled—which would be eagerly purchased by the nobility and gentry in the neighbourhood, with the usual privileges of Fellows, when there would be a very large class who would be glad of the free entry on such conditions into such a garden and promenade as that would be. These subscriptions would be issued at twenty and forty guineas each, giving personal admission to the ground. A considerable sum would soon be raised, as the life subscription would soon amount to a large item. Donations would also be made to a considerable extent. They had information that after the gardens were constructed donations would be made; but the residue would have to be made up by the issue of debentures. £50,000 were a very large sum; but from the information which the Council had received, it was believed there were a sufficient number of persons interested in the matter who would be content to take those debentures at 5 per cent., with some privileges attached to them. The debentures were to be paid off by surplus income and life subscriptions, if that should be a practicable operation. The Council might perhaps make the privileges of life subscribers much greater than they were at present, and then those privileges of the Society would become to be considered very valuable, and a very great boon. Another proposal was, that all persons should be compelled to do that which was done formerly, but allowed to fall into disuse—namely, pay an entrance fee of two guineas. That was what the Council intended to adopt; but of course the present members of the Society would be exempt from that. He felt he was justified in saying, from the offers that had already been made, that the issue of new life subscriptions would take place rapidly. The Council took care to ascertain the numbers that might be added, in order to show that those measures would be conducive to the interests of the members of the Society, so that they could see they were not likely to lose their money. If there were any risk he would tell them not to take the debentures at all. It was a difficult thing in dealing with such a matter to convince people; but there was no doubt the Council would be able to obtain sufficient debenture-holders to secure them from loss, because people would be induced to come forward on three grounds. First, because they would be actuated by

a good investment and a reasonable return for the money; secondly, because they would see it was not only a profitable undertaking, but that they would be able to get their money back when the proper time arrived; and thirdly—perhaps the best of all—there were, no doubt, many people who would subscribe without any commercial feeling whatever, but partly on account of the pleasure they would take in the privileges of the Society, and partly from a feeling of public spirit in being connected with such an undertaking. With respect to the question of a thirty-one-years' lease, the Commissioners had not proposed what to do after that time. It is no doubt a question that would require very serious consideration. They had been invited to confer with the Council upon the matter, and whatever arrangements may be made the Council would take care that the interests of the Society were properly attended to; indeed, the Commissioners had expressed every desire to do so in the broadest and most liberal manner. He had now, he believed, stated the whole case to the Meeting, and it would be competent for any gentleman present to offer such comments upon it as he desired.

Mr. WILTON SAUNDERS said that it appeared to be a great undertaking to raise £50,000; it appeared at first to be an enormous sum, but he had confidence in the calculations which had been made. He said he had gone into the matter with much care, and felt that the Society would be justified in going on with the work, and that there would be a very large income. Of course they could not fix what that would be. He was quite ready to go into it, because he thought it was a not-undesirable investment, and the scheme was a good one. It might be said, "This is a glorious scheme; but how is it to benefit the horticulture of the country?" The income derived would enable the Society to import many expensive plants which they have not means to do now.

Mr. C. W. DILKE said that as to the receipts it was utterly hopeless to do more than make a guess at them. But he had made it his business to communicate with the authorities connected with various institutions where payment was or was not made for admission, and he was satisfied the Council had approximated as closely as possible to the truth. The hon. gentleman then went through a variety of statistical matter bearing on this point. He had made inquiries as to the number of people that visited the British Museum, Hampton Court, and other places; which, although free, cost more than 3*d.*, and children 1*d.*, the price of admission the Society intended. He felt that the subject was well worth adoption by the Society.

Mr. CHARLWOOD proposed that a circular should be sent round to every Member with full details of the plan. He objected to the scheme *in toto*, because it was not one which went to further the objects for which the Society was originally founded. He protested against the movement in any shape whatever. He deprecated the outlay of £50,000 debentures by a Society that was already bankrupt. He should oppose it in every possible way.

The Duke of LEINSTER proposed the following resolution:—"That the Council be authorised to conclude the negotiation with the Royal Commissioners for a lease of the ground at Kensington Gore, upon the best terms that can be made."

Sir JOHN RAMSDEN seconded it. The matter was to be looked at in two aspects—as regards a decoration for the metropolis, and as regarded the interest of the Horticultural Society. He regretted to see the Society in such a depressed condition. He was very sanguine as to the results which might be expected by the new scheme for the benefit of the Society. The Council had mainly endeavoured to improve the Society's affairs for some years past, but unfortunately without success. He thought the Royal Commissioners had acted in a broad and liberal spirit. The resolution of the noble duke did not pledge the Council in any way, and he could say that that body had taken a straightforward, manly course in taking no decided steps without consulting their constituents at large. They had given a fresh proof of the claim which the Council had upon the confidence of the Society.

HENRY POWNALL, Esq., said that after the resolution had been moved by such distinguished Members of the Society it would not be considered discourteous of them to speak freely upon this point. He differed from the last speaker in thinking that the resolution did not pledge the Society. He recommended that the subject should not be disposed of so suddenly, but issued as a report from the Council, and taken into consideration two or three weeks hence. He asked if their charter authorised such an undertaking, and what

responsibilities they, the Members of the Society, would be under if the scheme were carried out as proposed? and whether the two-guinea admission fees were intended to apply to old Members as well as the general public? He thought thirty-one years were a short time to expend £50,000 upon. He should be glad to know upon what terms they could renew their lease.

Dr. LINDLEY said he did not think the charter interfered with it at all, because the object of the scheme was the increase of income to the Society, without which the Society could not get on. He showed that with respect to responsibility there was none individually—nothing beyond the corporate property of the company by their corporate seal. As to the admission fees to the proposed Fellowships it would only apply to new Fellows. With respect to the question of the lease of thirty-one years, it was a very serious one, and when the Meeting authorised the Council to take the necessary steps, that question would be the first to engage their attention.

Mr. NORTH thought the question should be more fully considered by the proposal being printed, and sent round to every Member of the Society for consideration by a future Meeting.

Sir PETER POLE and several other Members thought that the matter should not be decided too hastily, as it was an important financial affair, and he was against disposing of it so rapidly. He complained of the shortness of the time which had been allowed for its consideration.

Mr. C. W. DILKE said one of the reasons why the Meeting had been called at so short a notice was that the Commissioners required an answer in six weeks, and the Council felt that the season was so far advanced that it would be better to call the Meeting as early as possible. The letter from the Commissioners was received on Monday last only.

The Duke of LEINSTER thought it would be best to submit the matter to another Meeting, and his friend Mr. Pownall had a motion on the subject.

Mr. POWNALL then proposed the following amendment:—"That the thanks of this Meeting be given to the Council for the information afforded, and that they be requested to continue the negotiations, reporting progress to another Meeting."

Upon being seconded, Mr. HEYWOOD said that in the event of the gardens being made, he would advocate that they should be opened on Sundays.

Mr. DILKE said that the Fellows could please themselves as to whether they went into their own gardens on Sundays, and as one of the Royal Commissioners he should decline to discuss such a simple question.

Mr. COLE moved that Mr. Pownall add to his resolution:—"That the Council be instructed to ascertain whether the funds can be raised."

Mr. POWNALL thought they should not ask the public about that until they had agreed among themselves as to whether they intended to make the gardens or not.

Mr. DILKE read a list of the noblemen and gentlemen in the neighbourhood, to the number of 128, who were desirous of being elected Fellows in the event of the gardens being constructed, some of whom would take £500 and £1000 each in debentures.

Mr. HOLMES GODSON said that part of the present gardens at Chiswick would be retained for experimental purposes. The question of terms was one of great importance to the Society, and also to those who would subscribe to the debentures as to when they would get their money back. He looked upon the amendment as fatal to the Council. He thought they should not be fettered, but left to meet the Royal Commissioners in somewhat of a decisive character. He trusted the Council would be instructed to save time and go to the Royal Commissioners at once.

Mr. POWNALL begged to press his amendment. He looked upon the question of responsibility of the corporation as one that was of great import. Every member felt a moral individual responsibility beyond the legal one; and unless they did so, he thought they should not ask the public to subscribe £50,000. He wanted to be satisfied that there was a fair chance of people getting their money back, and then he could ask the public to subscribe. He felt that a delay of a week or ten days would make very little difference in the Royal Commissioners' time in treating of such an important matter.

Mr. WRENCH supported the movement as an attraction to enable the Society to recover what they had lost.

The Duke of LEINSTER expressed his willingness to withdraw his motion in favour of Mr. Pownall.

Mr. H. G. BOHN thought they would not be in any better condition a month hence. It was simply a question whether the members who approved of the scheme would take an active part in it. For himself, he was ready to take a double subscription, and otherwise assist the movement.

The CHAIRMAN put the resolution as amended by Mr. North—"That the consideration of this question be postponed for a fortnight, and that the details of the proposed scheme be printed and circulated."

A show of hands being taken, there appeared, for the motion, 11; against it, 24.

The CHAIRMAN next put Mr. Pownall's motion, "That the thanks of the Meeting be given to the Council for the information afforded by them, and that they be requested to continue their negotiations, and to report progress to another Meeting."

On a show of hands, there appeared, for the motion, 24; against it, 18. The Duke of Leinster's original motion was previously withdrawn.

Mr. COLE could not understand the force of the resolution just passed. The Council had received the answer of the Royal Commissioners, and now they were being sent back to re-ask the question. He thought the Meeting had got into a rut; and with the Society in a state of bankruptcy it was simply whether they would take the chance of doing something to get them out of their difficulties, or suffer themselves to be extinguished in a year or two, as they would be. He did not know now what the Council could possibly do under present circumstances.

The Duke of LEINSTER thought that some further written resolution should be passed to fortify the Council. It would be as well to have the proposal issued in a printed circular and considered hereafter.

Mr. DILKE thought the terms were remarkably favourable, seeing that there was no rent to pay unless they were successful. He wanted the Meeting to say whether they approved of having a garden at Kensington Gore at all or not?

Mr. POWNALL then moved an additional resolution to the effect that the Meeting approved of the scheme. He thought that would meet all objections as follows:—"That this Meeting approves generally the plan of the gardens at Kensington Gore, and requests the Council to continue the negotiation with the Commissioners, and report as early as possible to the members of the Society the final proposals of the Commissioners." Carried unanimously.

Mr. C. W. DILKE said, the carrying that resolution enabled him to act upon the communication which he had been entrusted with. He was now authorised to put the information before the Meeting, as the Fellows consented to do the best they could for the garden. He had himself been the chief organ of communication, and it had been his duty to keep His Royal Highness the Prince Consort and the Royal Commissioners informed of all the bearings of the case. His Royal Highness had looked over the draft report, and had instructed him to say that if the resolution were passed he would assist; but at the same time he commanded him not to express any opinion on the part of His Royal Highness or Her Majesty, so that there might be no appearance of dictation. He had now to open an official communication from Colonel Phipps, stating what Her Majesty and His Royal Highness were prepared to do. Her Majesty and His Royal Highness would give donations of £1000 and £500 respectively. It was also the intention of Her Majesty to place the Prince of Wales and the younger Princes and Princesses as Life Governors; and he was further authorised by Her Royal Highness the Princess Royal of Prussia to announce her intention to become a life member. He (Mr. Dilke) further stated that His Royal Highness the Prince Consort would take up debentures to the extent of £1000.

The letter was then handed to the noble Chairman, who read it as follows:—

"Buckingham Palace, July 7th, 1859.

"My Lord,—I have received the commands of Her Majesty the Queen, and of His Royal Highness the Prince Consort, to inform you, that in the event of the plan being carried out for the establishment of the garden of the Horticultural Society of London, upon the estate at South Kensington belonging to the Royal Commissioners of the Exhibition of 1851, it is the intention of Her Majesty and of His Royal Highness to make donations towards the execution of this undertaking of one thousand pounds (£1000), and five hundred pounds (£500) respectively. It is also the intention of Her Majesty, should it

be in accordance with the rules of the Society that parents or guardians should purchase Life Memberships for children or persons not yet of age, to place the name of His Royal Highness the Prince of Wales, and the younger Princes and Princesses upon the list of Life Members. I have further, the pleasure of informing your Lordship, that I am authorised by Her Royal Highness the Princess Frederick William of Prussia, Princess Royal of England, to announce the intention of Her Royal Highness to become likewise a Life Member.—I have the honour to be, my Lord, your Lordship's most obedient humble servant,

"The Earl of Ducie, &c., &c."

The Duke of LEINSTER then moved, and Mr. North seconded the following resolution:—"That the thanks of the Society be respectfully tendered to Her Most Gracious Majesty, His Royal Highness the Prince Consort, and Her Royal Highness the Princess Royal of Prussia, for the interest they have been graciously pleased to express for the welfare of the Society."

The resolution was at once carried most enthusiastically by every member present. The reading of the letter was also received with the warmest expressions of applause.

Mr. POWNALL moved a vote of thanks to the noble chairman for the kindness and courtesy with which he presided over the Meeting. There could be doubt now that the matter would go on well, and their success was certain.

The resolution was carried unanimously and responded to by the Chairman. A vote of thanks to the Society of Arts for the use of their room was also passed, after which the proceedings terminated.

The following estimates are what Dr. Lindley based his calculations upon in the course of his speech:—

Suggestions as to Receipts and Expenditure of the Horticultural Society if they go to Kensington.

ESTIMATED EXPENSES.

Chiswick Gardens, furnishing bedding plants, &c., and plants for distribution	£	s.	d.
Show Gardens and Greenhouses at Kensington	1000	0	0
Society's Staff	1650	0	0
Distribution of plants and seeds beyond those raised at Chiswick	750	0	0
Flower Shows, including prizes, but excluding music charged below	300	0	0
Police for 107 days, on which it is calculated that large numbers of persons will visit the grounds, and for ordinary day and night watching	1700	0	0
Taxes	700	0	0
Band	500	0	0
Repairs, &c.	1200	0	0
Water for Fountains	300	0	0
Extras	300	0	0
Total estimated expenses	£9400	0	0

ESTIMATED INCOME.

For 50 Mondays, entrance fee 3d.; 96,000, or average of 1920 adults, with Band playing 30 of the days (Easter and Whitsuntide below)	£	s.	d.
For 50 Tuesdays, 6d.; 6000, average of 120 per diem	1200	0	0
For 104 Thursdays and Fridays, 1s.; 3000, average of 28 a-day	150	0	0
For Wednesdays, 1s., Band playing 30 of the days, 30,000; average for the 50 Wednesdays, 600	150	0	0
For Saturdays, 2s. 6d., Band playing 30 of the days, 8000; average for the 52 Saturdays, 154	1000	0	0
Easter and Whitsuntide Holidays, 3d.; six days, with Band playing, 48,000	600	0	0
Flower Shows (past returns: Chiswick, six years, 1848 to 1853, average £4000 a-year; Botanic, 1858, £4800; Crystal Palace, three years, 1856 to 1858, average £4200 at doors)	5000	0	0

Season Tickets:—

Fellows	£1	4	0	×	500	=	£2100
"	2	2	0	×	2500	=	5250
Children	0	10	6	×	1000	=	525
							7875 0
							17,475 0 0

Say, Income	£17,475	0	0
Deduct Expenses	9,400	0	0

Leaves £8075 0 0

THE SCIENCE OF GARDENING.

(Continued from page 196.)

NIGHT SOIL is the most fertilising and most economical of all manures. We know of more than one garden characterised by the abundance and excellence of their produce which are manured almost exclusively with the house sewage. In China, and in continental Europe, a much juster estimate is formed of this

manure than in our own country. How fully that high estimate is justified may be at once understood by a reference to the following analyses.

Liebig, quoting Playfair, says that human fæces are composed as follows:—

Water	300.00
Carbon	45.24
Hydrogen	6.88
Azote	34.73
Oxygen	
Salts and earths	13.15
	400.00
Human urine, according to Berzelius, contains—	
Urea	3.01
Uric acid	.10
Animal matter, lactic acid, and lactate of ammonia	1.71
Mucus	.03
Sulphate of potash	.37
„ soda	.32
Phosphate of soda	.29
Chloride of sodium	.45
Phosphate of ammonia	.17
Chloro-hydrate of ammonia	.15
Phosphate of lime and magnesia	.10
Silica, a trace
Water	93.30
	100.00

There is no validity in an objection to night soil on account of its offensive smell, because that smell is rendered very slight when diluted with the other sewage and rain water from the house, and is perfectly deodorised in a few minutes by the earth upon which it is poured.

It is rendered still less offensive before application, if required in a solid state, by mixing it with coal ashes, earth, and gypsum. The best proportions we have found to be two barrows full of ashes, three of earth, and one of gypsum. Enough of this mixture must be incorporated with the night soil to render it so dry as to be easily spread by the shovel. The mixture was suggested by a knowledge of the chemical facts that gypsum (sulphate of lime) unites with the ammonia of the night soil; whilst the carbon in the ashes, and the alumina in the earth, act as deodorisers.

GUANO—the excrements of sea fowl, and the remains of marine animals—is another most powerful manure. It is composed chiefly of carbon, hydrogen, azote, and oxygen; but is rendered especially valuable by some of these being combined in the form of ammonia, and by containing earthy phosphates in a soluble form.

The following analyses are by Professor J. F. Johnston:—

Kinds.	Water.	Ammoniacal matter.	Earthy phosphates.
Peruvian	7 to 9	56 to 66	16 to 23
Chilian	10 13	50 56	22 30
Bolivian	6	65 64	25 29
Ichaboe	18 26	36 44	21 29
Saldanha, light	17 27	14 22	43 56
„ dark	33 44		
Algoa Bay	2.26	22.37	70.20
	23.93	23.16	43.15
Halifax	24.47	20.61	22.67
Bird's Island	25.49	19 to 21	22.43
	14.18		
Patagonian, light	10.99	20 25	24 to 32
„ dark	20.55		

Dr. Fownes found, in one analysis, the ammoniacal constituents and earthy phosphates were in the following proportions, but they vary very much in their relative quantities.

Oxatate of ammonia	66.2
Uric acid	
Carbonate of ammonia, &c.	
Phosphates of lime and of magnesia	29.2
Alkaline phosphates, chlorides, and sulphates	4.6
	100.0

The dungs of pigeons and domestic fowls are somewhat like guano, but they contain more of the earthy phosphates and less of the ammoniacal constituents.

THE DRAINAGE FROM A DUNGHILL contains some of its

soluble and most fertilising constituents. Therefore, it is best made under a shed in a waterproof pit, and communicating with a well, into which the drainage may pass, and from which it may be readily obtained. It is a powerful liquid manure requiring to be largely diluted with water.

A specimen of such drainage from heaps of cowdung exposed to rain were found by Professor Johnston to be dark-coloured, and, of course, contained only what rain water is capable of washing out of such dungheaps. An imperial gallon of these drainings, when evaporated to dryness, left about 480 grains, or an ounce weight of dry solid matter. This solid matter consisted of—

Ammonia	9.6
Organic matter	200.8
Inorganic (ash)	268.8
	479.2
The inorganic portion contained—	
	Grains.
Alkaline salts	207.8
Phosphates of lime and magnesia	25.1
Carbonate of lime (chalk)	18.2
Carbonate of magnesia and loss	4.3
Silica, and a little alumina	13.4
	268.8

Those, therefore (observes the Professor), who, besides allowing the urine of their byres to run to waste, permit the rain to wash their dunghills, suffer a double loss; they lose the ammonia-producing substances, and much alkaline matter in the urine and the phosphates, and a large additional portion of alkaline matter in the washings.

Wood charcoal reduced to powder, charred sawdust, and charred peat, are all capable of being used with advantage in extracting the ammoniacal and other salts which give its value to the liquid of the farmyards. Experiment has shown that, when filtered through a bed of such charcoal, the liquid escapes without colour, and almost without taste, while the charred peat or sawdust is itself converted into fertilising manure. Wherever, therefore, such charcoal can be obtained in abundance, and at little cost, this mode of employing it may be both useful and profitable.—(*Trans. High. Soc.*, 1846, p. 191.)—J.

(To be continued.)

RETAINING MOISTURE ABOUT GREENHOUSE PLANTS.

THOSE possessing a small greenhouse no doubt are well aware that, during dry weather (such as we have had here for many weeks, excepting a very few intervals of rain), there is a great lack of moisture in such a house, owing to the great heat of the sun and dryness of the atmosphere. We are in possession of blinds, &c., to keep out the sun; and to shut the doors to keep in the moisture would be ruinous to the plants, because three-fourths of their existence are from the air they breathe.

Now for the practice to obviate this parching burning heat. My greenhouse is a lean-to, facing the south. Well, a few weeks ago I took out all my shelves, and around them I nailed one-inch-and-a-half laths (two inches would do better), and upon them I placed a thick layer of sand; of course, upon this sand I place my pots. In watering my greenhouse, the sand receives its share. The house is moist, the plants and roots also; and if any friend will look at my Balsams, Calceolarias, and *Acroclineum roseum*, these especially, with the generality of the plants, such friend or friends of THE COTTAGE GARDENER, I think, will be tempted to try the experiment.

I have also applied the same practice to a lean-to flower-stand out of doors. I may just state that *Acroclineum* is very fond of moisture.

It is necessary to move the plants occasionally, because the roots like to have a peep into the sand.—S. TATTERSALL.

[The idea is a good one. For common purposes, platforms of earth covered with sand are better than shelves in summer; they do not do so well for Geraniums and other soft-wooded plants in winter. A little clean, fresh moss placed on the shelves is also a good thing in summer; and also frequent sprinkling of the floors and pathways.]

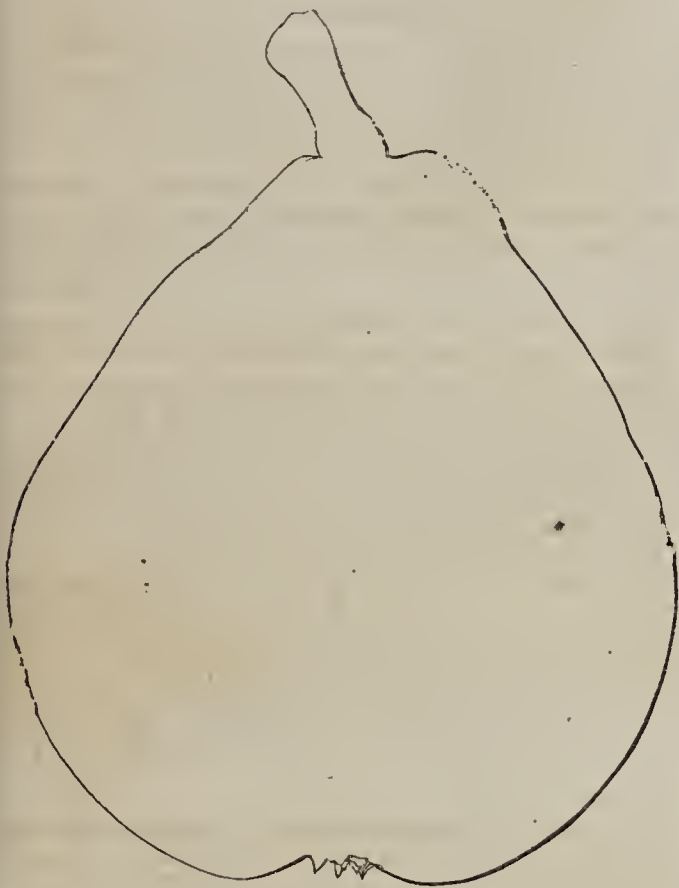
FRUITS AND FRUIT TREES OF GREAT BRITAIN.

(Continued from page 181.)

No. XXIII.—BEURRÉ BRETONNEAU PEAR.

SYNONYME.—*Dr. Bretonneau.*

THIS pear is one of those very late varieties which sometimes ripen and sometimes do not. In very warm seasons, and after hanging on the trees till very late in the autumn, they do assume a melting character about May, but it is very rarely that it can be depended upon as a dessert pear at that late period. In large collections it may be grown; but where space is limited it had better be dispensed with.



Fruit rather large, varying from obovate to long pyriform, and becoming sometimes four inches long by three and a quarter broad.

Skin somewhat rough; bright green at first, but changing as it ripens to yellow, and with dull brownish-red next the sun. It is considerably marked with dots and patches of brown russet.

Eye generally closed, but sometimes open, placed in a moderately deep and regular basin.

Stalk very thick, sometimes woody, inserted obliquely on the surface of the fruit.

Flesh yellowish-white, half-melting, sweet, and perfumed.

This variety is a seedling raised by Major Esperen, of Malines. The tree fruited in 1846, and was named in honour of Dr. Bretonneau, of Tours.

THE POTATO CROP.

WE much regret to learn from many quarters that the Potato murrain has made its appearance; but at present, as far as we know, only in the wet climate of Cornwall, in low-lying situations, or in highly-manured soils.

The following are extracts from some of the communications we have received:—

“Is there any remedy for the *Potato blight*? or can any remedial treatment be adopted when it has once made its appearance? I am induced to ask these questions in consequence of the very early appearance of this terrible disease in most of the gardens in this neighbourhood (near Dover), and the great

importance of this crop to the cottager.” — SIBERT-ON-THE-WOLD.

“Wheat (in south Essex) is unusually good, and very early. Barley fine. Peas excellent. Beans not a full crop. Potatoes are doomed, as usual, acquiring the disease, more especially on ground highly manured. Our opinion is, that if they were not manured at all, it would go far to abate the malady, if not to restore them to perfect health. We have not manured ours this year, and at present they show no signs of the murrain; whilst many other crops, highly cultivated by stimulants, are already rotten: and where this is the case it is well to remove the haulm immediately, and leave them (the tubers) in the ground for the present.”—A. HARDY AND SON, *Maldon, Essex.*

“The Potato disease, I am sorry to hear, has made its appearance in several gardens in this neighbourhood (Watton, Norfolk), though the effects, at present, are not very visible. But, to use a Norfolk phrase, which might with propriety be adopted into the general language of the country, ‘the time is yet new.’”—E. S.

“Never was the Potato disease worse in this neighbourhood (Penzance). Even the *Flukes* are in course of corruption. Ask your readers how *Holcus Saccharatus* flourishes with them. Mine seems an utter failure. It has been in the ground six weeks, and it is not nearly so high as Mangold Wurtzel sown the same day.”—W. W. W.

[We quite agree with Messrs. Hardy and Son, in deprecating the employment of manure either at the time of planting Potatoes, or during their growth. We knew a crop last year entirely free from disease except at one corner where liquid manure was frequently spilled. There nearly all the tubers were diseased. This year on the high grounds about Winchester there is no appearance of the Potato murrain at present; but we have heard of its affecting slightly some crops on the banks of the Itchin close to that city.]

In reply to “SIBERT-ON-THE-WOLD,” no “remedial treatment” is known. If the disease appears to increase we would take up the crop at once, and sell the produce for use as early Potatoes. If they are of moderately large size, we would store them in a dry shed in layers alternately with dry sand. They will improve and keep there for several months.

The present dry and hot weather will check the progress of this murrain.

We shall be obliged by the results obtained by those who have grown *Holcus Saccharatus*, or Chinese Sugar Cane, in this country.—EDS.]

HARROW HORTICULTURAL SOCIETY.

It is rarely we are so much pleased as we were on Tuesday last, when we were present at a Meeting of the Harrow Horticultural Society. The Society is entirely local in its operations, and the productions that are exhibited at the Shows are the result of earnest and good-natured rivalry between the amateurs and cottagers of the neighbourhood. None of the great nurserymen are allowed either to exhibit or compete; and there is, therefore, no opportunity for the productions of those who have great advantages and extensive appliances extinguishing the efforts of their less pretentious, but not less enthusiastic brethren in horticulture. The Show was held in the National School Rooms, which were most tastefully decorated with festoons and devices of evergreens and flowers. The rooms were literally filled with exhibitions; and all classes, both of amateurs, cottagers, and cottagers’ children, contributed to make one of the prettiest local shows we have ever seen, while the subjects exhibited reflected great credit on those who produced them. The most pleasing part of the Show was the exhibitions of the little children, which consisted of wild-flower bouquets, and specimens of Forest trees,—the latter all named. In this class there were some twelve or fourteen competitors, all of whom seemed to have gathered their rustic bouquets from the same meadow, and their trees from the same wood. Here was a puzzle for the Judges! What were they to do? What would any one who reads this have done? Why, give them all a prize, to be sure; and so the Judges did: and we think there were not two happier men in England, than those two Judges that day.

We have departed from our usual course in this instance in noticing the shows of local Societies; and we do so merely to

direct the attention of clergymen and gentlemen in country districts to the great good that might be done by the institution of such Societies. We all know what Professor Henslow has done in his rural parish. We have seen what the Rev. James Jeakes and Major-General Parr are doing at Harrow; and we feel assured that if the elevating pursuits of gardening and the spirit of generous emulation were more encouraged, it would be well with us as a community.

GISHURST COMPOUND.

ON the 21st of June I found a quarter of *Morello* Cherry trees, upwards of 1000 in number, suddenly attacked with the black aphid, well known to gardeners. I immediately had some of the Gishurst Compound dissolved in soft water (two ounces to the gallon), and the ends of the flexible young shoots dipped into it, being gently rubbed with the fingers while in the liquid. The shoots that were too rigid to bend were painted with the liquid, using a medium-sized painter's brush, and brushing upwards.

The day following I found nearly all my black assailants dead and dry. A few, however, were alive; and as from experience with tobacco water I knew that they would, in the course of a week, bring forth a progeny quite equal to those defunct, I gave orders for a second dipping at the proper time. On the 28th, feeling more than usual interest in my Cherry trees, I looked over those that had been dipped on the 21st, and could not find a single aphid left. Those that escaped the dipping on the 21st had languished two or three days, and then died. The young shoots imbued with the compound seemed fatal to aphid life.

Some young Plum trees covered with the blue aphid, peculiar to the Plum, and, in my opinion, the hardest and most difficult to kill of all the race, were operated upon in the same way as the Cherry trees. Not a single aphid has survived.

Some shoots of Rose trees covered with Rose aphides (the shoots were young and full of sap, and I never remember to have seen a more fat and thriving batch, winged and unwinged, of these, apart from Rose culture, really interesting creatures) were dipped into the liquid used for the Cherries about 8 p.m. They did not appear to suffer any inconvenience the first half hour, but remained on the shoots plump and quiet as usual. The next morning every aphid was dead; and most of them were brown and dry, instead of being green and plump as when living the evening before. The shoots have not been syringed with pure water to wash off the dead aphides, as is usual, but not one has made its appearance since. The young shoots, before so tempting, seem now to give out death. There are three modes of using the liquid compound—by dipping and the brush, as described above, and with the syringe, which is the only way it can be used when applied to wall trees, to trees in pots in the orchard-house, or to trees trained on trellises. When so applied, one operation will not kill all the aphides; for in one of my houses full of Peach trees, three applications were necessary before the swarm of aphides on every tree were destroyed.

For the oidium or any other kind of mildew on Vines, the Gishurst Compound is a perfect remedy. Early in June some Vines growing on a sandy slope, and trained to stakes as usual in the vineyards of the Continent, and which for many years have borne good crops of Grapes, with which wine has been made, became covered with the oidium. They were syringed once with the compound, four ounces to the gallon. The remedy seemed severe, as some of the shoots appeared to be killed. They have now entirely recovered, and are full of fruit. I should recommend only three ounces to the gallon, in preference to four; and if one syringing did not kill the oidium, to apply it twice.

The Vines in question, some six or eight in a long row, were almost destroyed by the oidium last year, and sulphur failed to arrest its growth, although applied abundantly.

The cheapness and efficacy of the compound make it almost invaluable. I have never yet found any remedy for the "ills" of gardening so cheap and so easily applied.—THOS. RIVERS, *The Nurseries, Sawbridgeworth, Herts.*

[There can be no further doubt respecting the efficacy of the Gishurst Compound. So numerous have been the nostrums for the cure of aphides and blights which have been introduced, and as certainly failed, during the last few years, that it is quite a deliverance from a great gardening calamity to find that a substance has at last been discovered which proves thoroughly efficacious. The many opportunities Mr. Rivers has, his ex-

tensive field of operations, and the candid and disinterested manner in which he carries out these experiments, furnish a perfect guarantee that the Gishurst Compound is one of the most valuable of modern discoveries to the gardener which science has yet accomplished.—EDS. C. G.]

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 198.)

PEACHES.

SPRINGROVE.—Fruit medium sized. Skin pale green in the shade, bright red next the sun. Excellent, very much resembles Acton Scot. Flowers large. Glands round. End of August and beginning of September.

Steward's Late Galande. See *Chancellor*.

SULHAMSTEAD.—Fruit roundish, depressed. Skin pale yellowish-green, with fine red next the sun. Flesh very excellent. This very much resembles the Noblesse. Flowers large. Glands none. End of August and beginning of September.

Superb. See *Royal George*.

Superb Royal. See *Grosse Mignonne*.

TÊTON DE VENUS.—Fruit elongated, larger than the Boudin, but much paler, having but little colour next the sun, and pale yellowish-white in the shade, surmounted by a large turgid nipple. Flesh white, red at the stone, delicate, sugary, and very rich. Flowers small. Glands round. End of September.

This is quite distinct from Late Admirable.

VANGUARD.—This is a variety of Noblesse, and so similar to it that the fruits cannot be distinguished the one from the other. The only apparent distinction is in the habit of the trees, which in Vanguard is much more robust and hardy than in the Noblesse; and the maiden plants rise with a prominent leader, while the Noblesse makes a roundheaded bush. Glands none. Flowers large.

Veloutée Tardive. See *Nivette*.

VIOLETTE HÂTIVE (*English Galande; Hardy Galande*).—This is evidently a variety of Bellegarde or French Galande, but is not so large in the fruit, and of a paler colour, although it also is of dark red colour next the sun. It may readily be distinguished by nurserymen, as it grows freely on the Musele, while the Bellegarde requires the Pear-Plum or Brompton stock. It is a large and very excellent peach, ripening in the middle of September. Glands round. Flowers small.

WALBURTON ADMIRABLE.—Fruit large and round. Skin pale yellowish-green on the shaded side, and crimson, mottled with a darker colour, next the sun. Flesh yellowish-white, melting, juicy, rich, and highly flavoured. Glands round. Flowers small. Ripens in the end of September and beginning of October.

This is one of the best late peaches, and the tree is very hardy and a good bearer.

White Avant. See *White Nutmeg*.

WHITE MAGDALENE (*Madaleine Blanche; Montagne Blanche*).—Fruit medium sized, roundish, flattened at the base, and divided by a deep suture which extends from the base to the apex, and terminates in a very slight nipple, which is sometimes wanting. Skin easily detached from the flesh, yellowish-white in the shade, and delicately marked with red next the sun. Flesh white, with some yellowish veins running through it, which are tinged with red next the stone, from which it separates; juicy, melting, rich, sugary, and slightly vinous. Flowers large. Glands none. Ripe the middle of August.

WHITE NUTMEG (*Avant Blanche; White Avant*).—

Fruit small, roundish, terminated by a pointed nipple, and divided by a deep suture, which extends from the base to the apex. Skin white in the shade and lightly tinged with pale red next the sun. Flesh white even to the stone from which it separates; rich, sugary, and perfumed. Flowers large. Glands none. Ripe the middle of July.

YELLOW ADMIRABLE (*Abricotée; Admirable Jaune; de Burai; Grosse Jaune; Grosse Pêche Jaune Tardive; d'Orange; Pêche d'Abricot; Sandalie Hermaphrodite; Scandalian*).—Fruit very large, roundish, narrowing towards the crown, where it is somewhat flattened, and from which issues a shallow suture, which diminishes towards the base. Skin fine yellow in the shade, and washed with light red on the side next the sun. Flesh firm, deep yellow, tinged with red under the skin, and at the stone, from which it separates; and of a rich sugary flavour resembling both in colour and taste that of an apricot. Flowers large. Glands kidney-shaped. Ripe in the middle and end of October.

YELLOW ALBERGE (*Alberge Jaune; Gold Fleshed; Golden Mignonne; Pêche Jaune; Purple Alberge*).—Fruit medium sized, round, divided by a deep suture which extends from the base to the apex, where it terminates in a considerable depression. Skin adhering to the flesh, covered with fine down, of a deep rich golden yellow on a portion of the shaded side, and deep red on the other, which extends almost over the whole surface of the fruit. Flesh deep yellow, but rich vermilion at the stone, from which it separates, and of a rich vinous flavour. Flowers small. Glands globose. Ripe the beginning of September.

This in favourable situations succeeds well as a standard, and is frequently grown in nurseries under the name of Rosanna, but erroneously.

LIST OF SELECT PEACHES.

Arranged in the order of ripening.

Small Mignonne	Noblesse
Early Grosse Mignonne	Bellegarde
Early York	Barrington
Abec	Walburton Admirable
Crawford's Early	Gregory's Late
Grosse Mignonne	Desse Tardive
Royal George	Salway

(To be continued.)

MR. JOSEPH WELLS, for many years gardener at Redleaf, Penshurst, Kent, died on the 23rd of June, at Shorne, near Gravesend. At Redleaf he assisted his employer, the late excellent William Wells, Esq., to establish the fame of these celebrated gardens. He was one of the first successful growers of the Chrysanthemum. His system of management was published in an early part of the "Horticultural Transactions." He was also very successful in raising seedling Dahlias on their first introduction into English gardens. The first double scarlet was raised by him. Noisette Roses he was also very successful with, and raised many good seedlings, which are favourites to the present day. Among them are Wells's *Garland*, Wells's *White*, or *Madame d'Arblay*, Wells's *Purple Noisette*, or *Sir Waller Scott*, Wells's *Pink*, Wells's *Red*, and Wells's dwarf *Floribunda Noisette*. Mr. Beaton subsequently added his tribute of praise, by stating that he was as good a Rose grower as any Frenchman that ever lived. Hybrid Rhododendrons made a great start at Redleaf under his charge. Having command of the pollen from *R. arboreum*, and *R. arboreum album* (which flowered here for the first time in England) to work upon the hardier kinds, many beautiful hybrids were raised. During Mr. Wells's time an excellent collection of herbaceous perennials was maintained—all desirable kinds being annually added. Ferns, also, had their allotted space. Few gardens at that time could compete with Redleaf for its select collection of hardy plants. *Lilium Japonicum*, under his care at Redleaf, was the admiration of all who saw it, growing and flowering most luxuriantly in the peat

borders. Neither were florists' flowers neglected. A named collection of Tulips, Picotees and Carnations, Pinks, Pansies, Ranunculuses, Auriculas, Ixias, Gladioluses (of which many beautiful seedlings were raised), and Alströmérias, all were successfully grown. Mr. Wells left Redleaf soon after the decease of his estimable employer, who was, indeed, the gardener's true friend. Since that time he lived in retirement, but his little garden bore ample testimony that his love for gardening had not diminished. [The foregoing notes have been communicated to us, and we add of our own knowledge that Mr. Wells was a very worthy man. He was born in the garden at Redleaf, and succeeded his father there. When the Horticultural Society had the confidence of the best practical gardeners in the country, some twenty years back, Mr. Wells was selected to be one of the fifteen judges at Chiswick.]

NEW BOOKS.

THE ILLUSTRATED BOUQUET.—The sixth number, which completes the first volume of this splendid work, contains a double plate (XXV.) of three handsome kinds of *Gladiolus gandavensis*; *Adonis*, light reddish or rosy salmon, shaded with crimson; *Danaë*, large bluish-white, richly suffused with rose on the lower segments; and *Archimedes*, very large, rich flame colour, opening a rich carmine. Then follow a practical digest of the best methods of cultivating the family, and an estimate of the relative value of the different sections of *gandavensis*, *ramosus* and *cardinalis*—the three great divisions of the family.

Plate XXVI. represents four kinds of new Poinpone Chrysanthemums—*St. Justia*, cinnamon red; *Miss Towers*, bluish-white; *Queen of Beauties*, rosy purple; and *Satanella*, amber changing to bright yellow; followed by a biographical history and a judicious sketch of the ways of cultivating these new Chrysanthemums.

The next plate (XXVII.) is taken up with a portrait of the new gorgeous *Clianthus Dampieri*—"a half-shrubby plant, with a biennial character," with copious directions for managing the plants from the sowing of the seeds to the flowering stage. Here, the practical department in the Wellington Road Nursery is in the witness-box, and tells "the truth, the whole truth, and nothing but the truth;" and the value of the evidence will run over a thousand plants under high pot culture.

Plate XXVIII. has *Dipteracanthus affinis*, and three magnificent new Gloxinias—*Princess Alice*, a splendid, purplish crimson, erect flower; *Carlton robusta*, shaded rose, passing into white at the margin; and *Mathilde de Landevoisin*, a remarkably beautiful flower, white in the throat, the white dying into deep purple, and that shading up to a porcelain blue, and fringed with white all round the margin. We in England have invented the sections of Gloxinias; but it is to the foreign florists we owe the gorgeous colours and rich combination of tints which must now mark first-rate Gloxinias like these. *Dipteracanthus affinis*, from Brazil, like *speclabilis*, from Peru, is a soft-wooded stove plant, with large Petunia-like scarlet blossoms—the richest among Acanthads. Just think of a Ruellia with the flowers of a large Petunia, and the colour of *Verbena melindres*, and you have this new *Dipteracanth* to a T.

This volume is dedicated to the Princess Mary of Cambridge, by permission; Her Royal Highness being in the first rank of the British legion to whom we are indebted for the rapid improvements in our flower gardens, and for whom no work was ever published on flowers more appropriate than the "Illustrated Bouquet." The choice of everything in all departments of the garden, the best practical rules for cultivation, and the most select lists of all the families treated of, with no pedantry or dog Latin, are as much an illustration of our own progress in gardening as it is of the finest plants of our time.

DRESSER'S RUDIMENTS OF BOTANY.—The following reply to the review of my "Rudiments of Botany" which appeared in the *Gardeners' Chronicle* of June 18th last, was forwarded to the Editor of that paper, but he refused to do me the justice of inserting it: however, through the kindness and high-toned principles of the Editors of this paper I am afforded an opportunity of vindicating my character. In the form of reply I shall, however, say little; for the spirit in which the review was written at once reveals that it was an endeavour to satisfy a spirit of animosity which has been retained against the author for the last few years. The renowned Dr. Lindley edits the *Gardeners' Chronicle*. This learned Professor's works are now offered as

prizes to the elementary students of all the schools, both in town and in the provinces, which are connected with the Department of Science and Art, South Kensington Museum, at which Institution I have the honour to be the lecturer. This fact, mingled with a little fear in the mind of the learned Doctor lest there should not be such a demand for the works hitherto offered to the students as there heretofore has been, fully accounts for that clause in the review which says, "Mr. Dresser has produced an expensive book, which was quite uncalled for." The preceding sentence, viz., that "Mr. Dresser does not understand his subject" is fully explained by one or two pages of my work; of these page 267 furnishes an example, where the notes to proposition 849 are intended to show that the learned Professor has given us in his "Elements," at propositions 385, 388, one or two statements which are false.* Relative to the mistake in my book quoted in the last clause of the review, I, without hesitation, acknowledge it to be such. Instead of being, "a Fig may be regarded as a peduncle turned *inside out*," it should be, "a Fig may be regarded as a peduncle turned *outside in*." This, however, is not a proposition—the proposition is correct—nor a whole note; and the remainder of the note is right. So both the remainder of the note and the proposition correct the error. But as regards mistakes, the one I have already pointed out as existing in the Doctor's "Elements" is of greater importance than the mistake in my book; and it is in the propositions, and is *nowhere corrected* in the work. In the Professor's "School Botany" we have (page 15), "If the filaments grow from immediately below the pistil, they are called *hypogynous*; if they grow upon the sides of the calyx they are *perigynous*; and if upon the summit of the ovary they are *epigynous*." On page 23, the Doctor says of the sub-class Calyciflora, of Exogens, that the "stamens" are "*always perigynous*," and yet he places in that sub-class (page 64) the *Epilobium*, where the stamens are as truly *epigynous* as they are, perhaps, in any known instance; and this flower happens to afford Dr. Balfour an illustration of *epigynous* stamens ("Bal. Class Book," p. 227, fig. 614). I mention this in order to caution those who live in glass houses against throwing stones, and to show that others make mistakes as well as myself.—C. DRESSER, *South Kensington Museum*.

[We think Mr. Dresser has just cause for complaint, as well for the hypercritical review of his book as for the refusal to afford him an opportunity for explanation. We have seen the "Rudiments of Botany," and feel bound to say, that although it does not contain anything that is strikingly new in that science, it presents the old truths, and the newest discoveries so intelligibly and clearly, as to suit the meanest comprehension of those who are earnest in the study of the science; and this is more than we can say of many of the books that are written on the same subject. The work is copiously illustrated with very excellent and characteristic wood engravings; and although it may contain such errors of oversight, or inadvertence, as have been indicated in the review alluded to, we conceive these to be no more a justification for the charge that "Mr. Dresser does not understand his subject," than the same charge should be made against Dr. Lindley for the errors that are to be found in his works.—EDS. C. G.]

QUERIES AND ANSWERS.

GLAZING A WALL.

"I have a wall about thirty yards long, and upwards of ten feet high, with a south aspect, which I wish to cover with glass for the purpose of growing Peaches and Plums without fire heat. I think of making, against this wall, a lean-to house eleven feet wide with glass in front. This wall, of course, would be covered with trees; and I propose to fill the house with trees in pots or

* Let us again take our two simple forms of inflorescence (Fig. 361, A B), one of which (B) is definite, or compound, according to Dr. Lindley—that is, it is formed of more than one branch; and the other (A) is indefinite, or, according to Dr. Lindley, simple—formed of the buds of one branch. Now, in each of these we have the same number of axes, and the same number of buds, and in both the primary axis has given off two branch axes, and each of these is terminated by a flower; and yet one is said to be compound (composed of more than one branch), while the other is simple, or the result of one branch. In both cases we have a central axis, which is the primary stem, and in both cases this primary stem gives off two branches, which are, therefore, the result of the simple and compound, while perfectly expressive of diverse formations of the axis, are inapplicable to the inflorescence (save to its axes). The expansion of the flowers reveals whether the mode of growth is definite.—*Rudiments of Botany*, p. 267.

boxes, and bush trees planted out. Would the trees on the wall be too far from the glass? Will Pears do well under glass? Some of my friends tell me that when grown in a house they have no flavour."

[Your plan will answer well, if you do not let your trees in front shade those at the back. If the front part were sunk lower than the back border, that would help you. If there is any doubt as to the flavour of the Pears, turn the pots and boxes out of doors as they are taking their last swelling. You will secure a crop—the great thing.]

RENOVATING AN OLD PEAR TREE.

"A wall Pear tree trained fan-shape is, I should suppose, at least fifty years old. The subsoil is sandy, and the shoots canker away, and the tree is fruitless. My employers have been advised by a visitor to train the young lateral shoots by the side of the main branches. These laterals to remain and grow up with the rest of the tree. I have failed to convince them that the method is impracticable, and that no advantage would attend the carrying out of the suggestion."—K. H.

[The plan proposed will not cure the tree of canker; to do this, the roots will require to be raised into better soil near the surface. Otherwise, the laying-in of the young wood is a good plan; but in doing so, each alternate main branch should be cut out, or all the spurs at present on the branches, so that the young lateral shoots may have plenty of light. Were the shoots reversed—that is, trained backwards instead of forwards in the usual way, the chance would be improved. It would be two years at the earliest before the fruit.]

GRAFTING AND INARCHING A VINE.

"B. C. will feel obliged by your telling him if it is too late to graft a Vine? It is in a late house, and in full leaf.

"Also, should the graft be put on the old wood or the young?"

[Unless you have a retarded scion not yet beginning to move, it is too late to graft the Vine. We hardly think that you could keep a scion in any place without budding before July. If it had been in April we should have cut the Vine down, and put the Vine scion on last year's wood, so that the inner bark of both would meet, and tie and clay in the usual manner.

At this season you had better proceed by inarching. Choose the strongest shoot of this year's growth on the Vine, bring a Vine in a pot to it, slip a piece off from the outside of both shoots, join them together, and in a few weeks the union will be effected. To give strength to the inarched shoot, gradually remove first a part and then the whole of the old Vine above the inarching. When the inarched shoot is growing vigorously, separate it also from the pot.]

SELF-ACTING VENTILATOR—CALIFORNIAN TREE LUPINE.

"Having a greenhouse to attend to a mile and a half from the garden, I have found it very troublesome at times. A thought struck me that there was a possibility of having a self-acting ventilator; and being aware of the laws of expansion, I thought that an iron bar, or rod, with a few pinions would be all that was necessary: the solar heat would accomplish the rest. The plan looks so feasible and so simple. A few wheels connected with the metallic rod would, from half an inch expansion, gain perhaps two feet. The plan is probable, but it is for you to say if it is possible.

"I got a few seeds of the Californian tree Lupine three years ago, and only two of them ever saw the light. I kept one of them in the greenhouse, and I planted the other out against the wall of my own house. The greenhouse one is a poor sickly thing; but the other is as strong and healthy as a whin bush, and flowering to profusion. It is now getting so strong, that it has nearly deprived me of daylight. If I had known that it would have been such a beauty, it should have been placed in a more conspicuous situation. Can I lift it with any chance of success? and when?

"Which is the earliest Strawberry?"—I. M. I.

[Ventilation may be given as you suppose; but it is rather an intricate affair, and the machinery is apt to get out of order. Such a house so far from the superintendent is of little value.

The best thing to do with it is to fill it with commoner plants in winter, and give air at top about eight or nine o'clock in the morning, and take it away about three in the afternoon. After the middle of March a little air, unless in severe weather, may be left on all night; and more given about breakfast time, and reduced again in the evening. By April air will give no trouble, as plenty may be left on from thence to October.

The tree Lupine, when raised, does best out of doors. You may lift it in the autumn, cut it back a little, and shade until it has taken fresh hold of the soil.

We find *Culhill's Black Prince* the earliest profitable Strawberry. This season the berries have been remarkably fine:—black, firm as cheese, and as large as ordinary *Keen's*, but so much better shaped.]

SUMMER PROPAGATION.

THE last experiment I conducted is as new as the fashions for this month of July; and you may search all the books, new and old, and you will not find it in any one of them. It belongs to the florists first, and then to the flower-gardener. It is, altogether, a very great mistake to think for one moment that I am not most friendly to the florists—I think I am the best friend they ever had in this world, and I like their flowers. The great bar between us is this,—I think they are on the wrong side of the great gulf, and I have been trying to get them over to the right side; first, by attempting to divide the waters; and, secondly, by the use of planks and scaffold-boards for bridging it. But, I have received no encouragement from themselves.

However, for my good intentions to the lovers of the ribbon style of flower planting, I am rewarded in a worldly point of view. I raised a yellow Polyanthus two years back, at which an ardent florist would even attempt a "loup" over the great gulf itself. This was the flower at which one of our Editors exclaimed, "Good gracious, what a Polyanthus!" when he saw a cut truss of it. The first thing I did was to seed every flower; and all the seedlings failed to run after the mother in looks or colour, except one, which is yellow, but I have not seen it yet. It turned up in a lot I sent out to get proved for me far down in the country. Several first-rate men have seen it, and, like the said Editor, almost regretted that Polyanthuses, and, more particularly, such a one as this, could not be increased faster, so as to get them at once into the ribbon lines,—being the finest yellow we have for the spring bedder. But who knows this cannot be done? Where is there the account of any great or enterprising experiment having ever been made on the point? Or, why is it that Polly's Nightcap Auriculas are selling to this day at so many half-sovereigns a piece? Why, indeed, but for the great secret of their propagation, which has all along been in the hands of the florists; and they keep their secrets so well, that we need never think of ferreting it from them, or of fathoming a quarter of their depth at shy propagation. Therefore, we must put up with the crumbs till accidents, or eventful occasions like the present, throw something more useful in our way, and more palatable than "broken victuals."

The first turn I made of my yellow Polyanthus, gave 11 plants, the second turn 34, the third turn 120, and the fourth turn 300 plants, all in eighteen months; and if all be well with me by this time next year, I do hereby engage to jump across the gulf backwards, and never again part from the florists, if I cannot produce 2000 plants of it ready for the ribbon-border the following spring. So you see it is no joke. But it is all from lawful and scientific propagation. Would you not think it, therefore, great folly on my part to divulge the secret of how it is done, and so let any one else take the bite out of my mouth? But there is where one-half of the world, and three-quarters of the florists are wrong—radically wrong, as I could prove; but the weather is too hot now for a dry disquisition on the philosophy of the doings.

When the flower-truss of a border Polyanthus is seen

in the heart of a cluster of leaves, in March, is the best time in all the year to propagate, or divide it, for stock, but not for flowering. I should think September would be the best month to divide them for the flower garden, as one had merely to part a large lump of it into four quarters, and make four plants to bloom quite well the following spring. I have seen them divided into such quarters, and much smaller, and planted, and be in full bloom next week, as far back as in the spring of 1818, and the three following years the same; and I never saw such another sight of Polyanthuses from that day to this. The plan was then a novelty near Inverness; and what can be done with Polyanthuses is just as great a novelty near London at the present moment.

To divide a Polyanthus, we must have it taken up out of the border with all its roots, and the same way as one would divide an old Strawberry plant, and as all *Hautbois* ought to be increased is the way to do the Polyanthus. Such plants are divided into so many "crowns," or divisions. The larger the plant, or stool, the more divisions or separate crowns it has; and each of these divisions make roots for itself, independently of the bottom roots, which are common to all the crowns of a plant. The smallest quantity of roots, to a slip or division of Polyanthus, will set it right in March, when growth is rapid in spring flowers. After all the crowns have been carefully separated, with more or less roots to each, there still remains the old block, the bottom and centre core of the plant, just divested of all the side and top shoots: it is a pollard, and is thrown away along with the leaves and rubbish. I did so with my first dividings, without giving it a thought. But, like the stool of a Pine Apple plant, after all the suckers are taken off, if you save it, and plant it, and tend to it for a while, it will throw up more suckers from buds which are, like moles' eyes, hardly to be seen. In looks they are late or insipid; but in a good, rich border they will soon be neither, but rise into so many palpable "offshoots," as they are sometimes called. This second crop of suckers did not appear above ground with me till the end of May; and by that time the first crop was well established—each sucker or crown now an established plant on its own bottom.

To push the propagation with all my might, I now earthed up all the plants with very light mulching; and by the beginning of July—just this present month—fresh roots were made up to the surface, or near the surface of the mulching, and I cut off all the tops again, and had new roots to every one of the divisions. My plants are now like Vines or other fruit trees after being stopped early. The back eyes will not long be Latin adjectives in the dog days: and who shall say that for every head I cut off in the first days of July I shall not have four heads next September—all rooted of course, and ready to come off again, then leaving me so many more sources of mole's-eye buds, which no man can number till they sprout? And if that is not fast enough for all conscience, we must try another turn.

Now, every one of the florists' Auriculas, and Polyanthuses, and "alpines" or "selfs," are quite as susceptible of this rapid, rollicking way of propagation as my "good gracious" yellow bloomer Polyanthus. There is no end to the host of plants that might thus be kept in perpetual motion from the first rise of the sap in the spring to the edge of the frost in the autumn.

But the most astounding way of propagation I ever heard of is in Gilbert's "Vade Mecum," which was to layer with the "tongue" of the layer the reverse way. In our way of layering—say the Carnation—we make a tongue by cutting up from a joint; and when this is fixed the tongue opens downwards, and the sap, returning, gets stopped at the tip of the tongue, breaks off into roots all round the mouth, tongue and all. This plan was reversed in olden times; and we must take to it again, for it is extremely useful: the wonder is how we could have done so long without it. It is more applicable to very rare

trees, and woody bushes that are difficult to root, or to propagate fast enough; and the operation is done, or rather was done, on the roots. But let us bring it home to ourselves, and say we have as large a garden as we can afford to keep, lots of trees all round the sides, and no one seems to know the names of one-half of them. Every year some of our visitors ask for seeds or cuttings of some particular kinds of our trees; but they will neither ripen seeds nor come from cuttings, and, not knowing the names, we cannot buy young plants to please our best friends. But Gilbert's plan of root-layers, with the tongue *upwards*, would do the thing as quietly as possible, and no one be the wiser. Who knows but even Conifers would thus come from root-layers? A vast number of plants will come from root-cuttings; and there is the common practice of cutting roots through, and leaving them in the ball at the spring potting to sprout or perish, as the case may be: but the old method of layering the roots is the best and surest way. Gilbert says, "Nature usually provides this way of propagation, without the wit or industry of man called to her assistance; but that not generally in all plants, nor always in any one: therefore well worth learning of those that delight in gardens to know any means to enlarge this way of propagation beyond the bounds it is carried through by Nature's course. And it is done by baring the roots of plants of woody substance, and then making a cut of the same fashion with that which is made in layings, *not towards but fromwards the plant*. Into this cleft a stone must be put, or something that will make the root gape, and the part cut (the tongue) stand upwards. Then cover the root over with three inches of light mould; and the lip that was lifted up will sprout into branches, the root of the old tree nourishing it. When the branches are grown, cut off this plant with its roots to live of itself. This is called starting a root."

In bulbous roots, Ferarius makes offsets thus:—"If," says he, "a bulbous root is barren of offsets, with your nail lightly cut it upon the bottom in the crown of the root whence the fibres spring, and sprinkle some dry dust upon it as a medicine to the wounds;" and the effect he affirms to be this, that "so many wounds as you shall make, in so many offsets shall the genital virtue dispose itself." This last method of increasing rare bulbs is the best and surest way we know of at the present day. "*Caryophyllus hortensis*, called July-flowers, or, more vulgarly, Carnations, vie with any species whatever, considering the usefulness of some of them as the best cordials, extremely comforting the noblest part of man, the heart, either in the conserve of the Cloves made with sugar or in syrups." He puts great stress on the right compost for them, and his soils would do now; and the substance of the following paragraph was given as a great novelty—quite an original idea—by a great friend of mine not many years back:—"Another sort of earth for July-flowers I was acquainted with one Mr. Fiddin, gardener to the worthy Sir John Packington, of Westwood, in Worcestershire, in which I saw his flowers flourish and mark beyond expectation. It was thus compounded: Rotten tan—*i.e.*, the relicks or rubbish of a tanner's pit—that by long lying is converted to earth, this layn on a heap for three months to sweeten, for in its own nature 'tis too sour for such uses—to one barrowful of which four of good rotten wood-pile earth, and the rubbish of old walls, or, for want of which, a little old decayed lime—a quarter of a peck at most—mixed well together, and let lie a fortnight ere you put it in your pots for July-flower layers to be transplanted in is a secret few know."

Again. "From the middle of June to the same time in July is the prime time of laying July-flowers. Make choice of such slips as are longest, having joints sufficient for laying; prune off the side leaves, and the ends of the top leaves; cut the undermost part of the middle joint half through; from hence slit the middle of the stalk upwards to the next joint; open the earth underneath to

receive it; then gently bend it down therein, with a small hook stick stuck in the earth to keep it down, keeping up the head of the slip, that the slit may be open, and so pressed down and earthed up; which as soon as performed must be sure to be watered, which must be often reiterated."

Now, that is the original receipt, by which all the layering, and all the writing about layering, have been done for the last two hundred years; and any one who can handle a penknife, or one of those excellent knives manufactured by Mappin Brothers, which will cut into anything to a hair's breadth, may now try his hand at Gilliflowers, Roses, Jasmines, rare Honeysuckles, and almost all kinds of woody plants; but let us stick to Roses, as the best to teach patience, to show that neither silk, nor cotton, nor any thread gloves, are necessary to save the fingers from pricking; also the best to learn gentleness in handling the brittle shoots, which will snap like glass if they are not fingered as a hairdresser would ply his hands and fingers in "touching up" for a court ball. That is the style, the stroke, and the way to slit tongues, to root fast, and freely, from all sides of the cut. Gilliflowers take six weeks to root, and September is the best time to take them off and pot or plant them. Roses will have to remain on till about the end of February; *but the heads of all Rose layers ought to be pruned back to three eyes at the end of October*, as a most scientific rule never to be departed from on any consideration whatever, as that simple process will just advance every such layer fully twelve months over another of the same kind of Rose which is not pruned till it is cut off from the stool early in the spring. Those who cannot strike Roses now from cuttings should try this.

D. BEATON.

THE ADVANTAGES OF ORDER AND METHOD IN GARDEN MANAGEMENT.

It has been said that "order is Heaven's first law," and there can be no more striking application of this truism, in its earthly sense, than is found in the order, method, and arrangement of all the details which belong to a large garden.

Unhappy is the man who is placed at the head of such an establishment if he have not received something of a liberal education; something which elevates him to the rank of a "liberal profession," so handsomely assigned to gardeners by Judge Hallyburton. If he have not had this given to him, and does not possess a degree of acumen,—at least, equal to his fellow men,—I say that his lot is not to be envied.

To make a really good gardener, it is not only necessary that a man should possess an infinite knowledge of fruits, flowers, and vegetables, and of the fit and proper seasons for sowing them, according to rule, but he must have resources within himself, and be able to step aside from the practices he has seen and pursued, and adopt others which may suit the demands made upon him by his employers, the inexorable cook, or to suit the poor, dry soil, and an ungenial climate, by that modification which every practised man knows how to make.

There is a great charm in neatness, in giving to every operation that touch which shows it to be accomplished by a skilful operative. We find that, in our progress to thorough civilisation the artistic impress is more and more necessary. Man in his primitive state is satisfied with ruder implements and coarser food; but as he rises higher in the scale, he engrafts the *dulce* on the *utile*, and gives artistic designs for the pots and pans of his household. He gives to his tools in addition to their useful properties an elegance of design, which is not lost upon all well-regulated minds. He is no longer satisfied with garments which merely guard him from cold; but they must have also "the cut of elegance;" and, look ye, how far removed from the necessities of common life is yonder elegant table groaning under its load of "delicacies of the season," and grouped and adorned with Flora's choicest gems.

It is beautiful to remark in the courses of life how concomitantly improved design follows up improved usefulness.

A garden to be highly kept must be most accurate in the expression of its hues and forms as works of art. There ought

not to be any gappy or tufted edgings, or sinuous, irregular curves with deep margins; but everywhere the eye should repose upon gently undulating and flowing lines bending with mathematical precision.

We not unfrequently meet with kitchen gardens in a state of great neglect, whilst the flower garden is very perfect; and it sometimes happens, *vice versa*. To grow weeds at all is a fundamental error; and to attempt to keep a large place without sufficient hands is very unsatisfactory. A small portion of well-kept ground yields more satisfaction to its owner than princely Stowe can afford in its dismantled and fallen state.

It is found in all trades that proper sub-division of labour results in having what is done, done well. If you wish to make a really good workman, you must concentrate his energies on one department of his business. Constant practice in this will make him, in time, a first-rate operative, and he will excel in every manœuvre of his department. A well-organised staff of men are like the wheels of a steam engine: if any of them get displaced, the most sad disorder ensues; but while the "right men" and wheels are in the "right places," all is harmony.

Attention to trifling matters is a great point in the character of those who have to direct the operations of very large places; and it may always be regarded as a truism, that he who disregards trifling things will never consummate great ones. Let, therefore, young men not dispense with attention to trifles; but rather let them be most exact in attending to them, considering that the habit of doing so goes very far in forming the character of the real man of business.

The fingers of the gardening world point to one man who has, by his constant perseverance and attention, risen far above the zenith. I mean my old friend, Sir Joseph Paxton, who, I can state from personal knowledge, always took a pride in performing the most menial of operations well (and I knew him when he had those of a very disagreeable character to perform); but his zeal and alacrity never flagged; and he kept going on, from one thing to another, till he reached the Crystal Palace—one of the finest conceptions of the age in which we live. True it is, that he met with a most kind and liberal patron in the late Duke of Devonshire; but much is due to his own untiring energy and perseverance.

The character of a gardener is specially visible in his place,—care and intelligence, order and design, are objects too easily recognisable to be given to the sloven; while the keen-sighted and methodical man is known at once by the rule of order amongst the most trifling things. He "has a place for everything, and everything in its place." He essays to accomplish all he aims at by settled plans, every stage of which he measures by his far-seeing eye. His laws are not unchangeable, like those of the Medes and Persians; but he is ever prepared to tack and to vary his course so as to suit fresh circumstances.

Let, then, those young men who are desirous of making an important figure in the world pay strict attention to small things, and thus acquire those habits which seem so essential to the character of a good gardener. Let them particularly exercise the faculty of observation, so will they trace effects to their certain causes, and be led into the path of truth; avoiding those errors and false conclusions upon which too many have split, and giving evidence (if such were needed) that the art of gardening is indeed (in the words of Mr. Justice Hallyburton) "a liberal profession."

Let every one who essays to be a gardener, "read, mark, learn, and inwardly digest" the incidents of the great book of Nature, which is ever open before his eyes. Let him note the infinite design, order, and systematic beauty which are depicted in it. Let him impress this thoroughly on his mind; and he will, after due study, be enabled to design works which, in a less degree, will combine harmony and elegance of form.

"He who undertakes the profession of a gardener," says the Rev. W. Marshall, "takes upon himself a work of some importance, and which requires no small degree of knowledge, ingenuity, and exertion to perform well. There are few businesses which may not be learned in much less time than that of a gardener can possibly be. It often happens, however, that a man who has been very little in a garden, and who can do little more than dig, or put out Caobage plants, will call himself a gardener; but he only is worthy of the name, who, having had much practice in the various parts of horticulture, possesses a genius and adroitness fitting him for making experiments, and for getting through difficulties which the existing circumstances of untoward seasons, &c., may bring him into. He should possess a spirit of

inquiry into the nature of plants and vegetables, and how far art (in his way) may be made successfully useful, or, at least, probably so. The mode of growth, the pruning, the soil, the heat and moisture which suit particular plants, are not to be understood without a native taste and close application of the mind.

"Whoever will give himself the trouble to trace a good gardener through all the stages of his employ in all the different seasons of the year, will find it to be one continued circle of labour, reflection, and toil."

This trite summary of the life of a gardener fully justifies the few observations which I have ventured to offer on his duties. May we hope that the truths inculcated will be seriously weighed by the younger part of our brethren? and may we hope to see some other Paxtons, whose originality of thought and shrewdness of invention, shall shed a lustre on future horticultural eras?—HENRY BAILEY, *Nuneham*.

APHIDES.

YOUR correspondent "M. E. W." states in THE COTTAGE GARDENER that there is no remedy for green fly but tobacco smoke. I have tried a powder sold by Messrs. Burgess and Key, 95, Newgate Street, which has effectually removed this pest from my Roses and orchard-house trees, and without injuring or disfiguring the most tender foliage, although the leaves were smothered with the powder. It is applied either by dusting or inserting the infested shoots into it. In a quarter of an hour they are free from blight. If the leaves are dry, the powder is removed by shaking; if damp, a syringe cleans thoroughly. It is an efficient and economical way of getting rid of green fly, and very clean.—A CONSTANT READER.

AMERICAN PEARS IN ENGLAND.—Mr. Rivers writes to Mr. Hovey, that "the *Seckel*, *Tyson*, and *Mojamensing*, are the only kinds really good," among a large number that he has tried. He says:—"It is really strange that so many of your native Pears should be here so inferior, while we make the *Seckel* one of our standards of flavour; it is also remarkable that we should give you one Pear universally popular (the *Bartlett*), and that in like manner you have given us one (the *Seckel*)."—(*Prairie Farmer*.)

TO CORRESPONDENTS.

TRANSPLANTING A VINE IN A POT (*Brighton*).—You may take it out of the pot, without disturbing the root, at once, and plant it in the border against your south wall. When the leaves have fallen in the autumn, cut it down to within two or three eyes of the ground. If very strong, you may leave four eyes.

CUTTING DOWN PELARGONIUMS (*Idem*).—Cut them down as soon as the blooming is over. You may cut them down into the old wood. In No. 312, p. 248, you will find a full detail of the distinction between a Pelargonium and a Geranium.

NAME OF GERANIUM (*M. G.*).—Your Geranium is *Patrick's Seedling*, which is named *Atro-sanguineum Nosegay* at Kew.

FLOWER GARDEN PLAN (*R. A.*).—The arrangement of your front garden can only be judged properly on the spot; but the arrangement of your planting is in the first style of fashion, uncommonly well done. It would be less trouble in keeping, if the first row in No. 3 were the second row, and the second first; but two months more will tell you better.

BOOKS (*A Subscriber, Preston*).—If you want a cheap book, have the "Garden Manual," published at our office, price 1s. 6d. If a more expensive one, you cannot do better than get the one you mention. The "Garden Manual" will supply all the information you ask for.

BROWN COS LETTUCE (*B. D.*).—The best we have seen is the *Berkshire*. The Royal Agricultural Society's Meeting at Warwick commences to-day.

DECAYED ROSE-BUDS (*F.*).—Where the Rose-buds were very numerous this year, many, especially the central buds of a cluster, have dried away. Thinning the buds where thus clustered, and giving liquid manure, prevent the evil. Strawberry blossoms becoming blind may arise from various causes. Late spring frosts, poor soil, and deficient moisture, each cause it.

CONFERVA FLOCCOSA IN A FISH-POND (*Liverpool*).—We know of no other means of banishing this aquatic weed than by frequently and powerfully disturbing the water, or by a stream flowing through it. We shall be obliged by any information on this subject.

WINE OF MAHONIA AQUIFOLIA BERRIES.—*A Subscriber* wishes to know if such a wine has ever been made, and, if so, how?

BLACK APHIS ON MORELLO CHERRIES (*S. Ambler*).—We think there is nothing better than tobacco liquor holding a good portion of glue in solution. The worst parts to be dipped in and rubbed with the liquor, and next day to be thoroughly scoured with the water-engine. But it must be tried again. When once such insects have got hold, one application will not be effectual. Gishurst Compound we also believe to be good; see what Mr. Rivers says about it to-day.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

JULY 21st. PRESCOT. *Sec.*, Mr. James Beesley, Prescott.
 AUGUST 10th. ORMSKIRK and SOUTHPORT. *Sec.*, Mr. James Spencer, Ormskirk. Entries close the 22nd of July.
 AUGUST 19th and 20th. BRADFORD. *Sees.*, Mr. A. Hardy, Bowling Old Lane, Bradford, and Mr. E. Blackburn, Black Bull Inn, Ive Gate, Bradford. Entries close August 12th.
 AUGUST 25th, 26th, and 27th. MACCLESFIELD. *Sec.*, Mr. W. Roe. Entries close August 10th.
 AUGUST 27th. HALIFAX. *Sec.*, William Irvine, Holmfild, Ovenden, near Halifax.
 AUGUST 29th, 30th, 31st, and SEPTEMBER 1st. CRYSTAL PALACE. Poultry, Pigeons, and Rabbits. *Sec.*, William Houghton. Entries close Saturday, July 30th.
 SEPTEMBER 22nd. BRIDGNORTH. *Sec.*, Richard Taylor, Bridgnorth.
 OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. *Sec.*, Geo. Griffiths, 7, St. Swithin Street, Worcester.
 NOVEMBER 28th, 29th, and 30th, and DECEMBER 1st. BIRMINGHAM. *Sec.*, Mr. J. Morgan, Bingley Hall, Birmingham.

SHEFFIELD POULTRY SHOW.

It is refreshing to find, that when the poor old Royal Agricultural is about to hold its Show at Warwick, shorn of one of its principal attractions (poultry), the practical men of the North are giving it additional importance, and are offering prizes of unusual value for choice birds. They believe that it is a fit associate for agricultural implements, and the support they meet with is proof the public voice is with them.

A liberal prize list brought together 599 pens of poultry, exclusive of extra stock. They were shown in the Norfolk Park, where between four and five acres of land were fenced in. The pens were placed in double tiers, entirely open in front, but well protected from all weathers by a projecting roof of plank and canvass.

Spanish were first on the list. Here the first prize was the gift of the Mayor's lady, and it was a notable one. Teapot, coffee-pot, sugar basin, and cream jug—a magnificent set.

Twenty-four pens competed for it, and include nearly all the famous strains. Mrs. Hall, of Sheffield, took first prize; Miss Rake second; Mr. Garlick third; Mr. Dixon fourth. This was an excellent class, and the birds were shown in perfect condition. It was a hard run between Mrs. Hall and Miss Rake; but the hens in the former pen were perfect, and decided the point. We do not expect to see a better class than this was. *Spanish* Chickens were worthy of the adults, and here Miss Rake was first; Mr. Atkins second; and Mr. Robinson third. There were eighteen entries in the class for two hens, and the prizes were well contested. Both went to Mrs. Hall; but the victory was not an easy one. Miss Rake and Mr. Dawson were close. Sheffield is well up in *Spanish*—both the prizes for single cocks remained there. All these *Spanish* classes were excellent.

Class 5 brought out adult *Dorkings* in strength. Mr. Evans took first. The Hon. W. W. Vernon second and third; Mr. Potts fourth. In this as in other classes we are compelled to omit the commendations, and to refer our readers to the prize list.* Separate mention of all would make our report too long. The *Chickens* were very good, and the prizes went to Messrs. Wakefield, Dolby, and Chadwick. They richly deserved them. The *White Dorkings* were good but not numerous. Mr. Robinson, of Garstang, made a clean sweep of both classes. We are bound to speak most highly of the *Dorking* cocks—we have never seen better. Captain Hornby was first; Mr. Robinson second; and a beautiful bird belonging to Mr. Botham could only be highly commended: These were three unusually meritorious birds.

Game came next, and showed good birds. Mrs. Henry Sharp, Mr. H. D. Bayley, and Mr. Robinson, were the distinguished for adult *Whites* and *Piles*. Messrs. Camm and Robinson for *Chickens*. *Black-breasted Reds* were as usual a very strong class. The Hon. W. W. Vernon was first, followed by Messrs. Sutherland and Archer. Messrs. Swift and Coupe were similarly distinguished in the *Chicken* class. There was very great competition in these; and some of the highly commended deserved more than such a distinction. The condition of the hens at the end of a season was marvellous. The *Blacks* and *Brassy-winged* were the weakest in all the *Game* classes. Mr. Dawson, Mrs. Sharp, and Mr. Marsh, and Messrs. Bell and Sanderson, were successful. The *Duckwings* were excellent, and the competition in the adults was as great as in any class of this good Show. It was hard fighting for the prizes, which were awarded as follows, to Messrs.

Adams, Bradwell, and Moss. The *Chickens* were less numerous, and the first prize went to Suffolk, to Mr. Matthews; the second to Mrs. H. Sharp. We are next introduced to one of those monster classes, the introduction of late years—a single *Game* Cuck class. Seventy-eight entries. It need not be said there was great competition. Mr. Woods took first and second prizes; Mr. Doncaster third; Mr. Dawson fourth. It would be unfair not to make especial mention of four highly commended birds, two belonging to Mr. Moss, the others to Captain Hornby. They were beautiful.

There was an excellent class of *Malays*; and, true to the old tradition that the best of this breed are in the neighbourhood of the London Docks, the first prize came to Mr. Sykes, of London; Mr. Ballance was second; Mr. Brooke, of Suffolk, third. All these birds were very good. There is something in good strains.

Mr. Tomlinson was first in adult *Cochins*; Mr. Stretch second; and Mr. James third. Mr. Fowler was first for *Chickens*; Mr. Berwick second. These birds bid fair to keep up the improvement in these breeds that we have noted the last two years. One word here to exhibitors. In showing early chickens, size is not the only desideratum; symmetry and condition must also be considered. The *Grouse* and *Partridge* were good and very carefully chosen in colour. Messrs. James, Stretch, and Felton, in adults; and Messrs. Herbert and Felton, in *Chickens*, deserved their prizes. Messrs. Chase, Titterton, and Dawson, had the honour of the *White* adults; while our old friend, Mrs. Herbert, took her old place as first among the *Chickens*; Mr. Chase was second. These birds are improving.

Two well-known names were successful in the *Single Cuck* class, in the teeth of much competition—Messrs. Tomlinson and Cattel.

Brahma Pootras produced specimens of great beauty. Mr. Botham took two first and one second prize; Mr. Teebay one first and two second. We are bound to speak most highly of these birds.

Golden-pencilled *Hamburghs* were very good, gaining honours for Messrs. Robinson, Marshall, and Worrall in adults; and Messrs. Dixon, Carter, and Maude in *Chickens*. The *Golden-spangled* were also highly meritorious, but when the competition is as close as it was here, it is absolutely necessary combs should be perfect. Messrs. Lane, Davies, and Worrall were here the victors. Messrs. Carter and Brooke were deservedly successful in *Chickens*. Messrs. Haigh and Hayes won with good cocks. The *Silver-pencilled* were excellent. Mr. Archer was, of course, first; Messrs. Dixon and Pryor followed. We thought this a very superior class. We are obliged to shift our type in recording the prizes in *Chickens*. For once Mr. Archer did not win; Mr. Griffiths, of Worcester, was first; Mr. Sharp second; Mr. Berwick third. There was much competition in *Silver-spangled*, Mr. Teebay took the lead, followed by Mr. Dixon and Mrs. Sharp. Messrs. Bird and Beldon were first in *chickens*; Mrs. Sharp second and third. In these classes the adults were certainly better than the *Chickens*. For single *Pencilled* cocks, Mr. Worrall held his old place, Mr. Archer followed. We have never seen a better bird than that shown by Mr. Worrall.

There were very good *Poland* fowls in every class, but the entries were not sufficiently numerous to justify prizes as liberal as those offered at this Show. Mr. Dixon took five prizes; Messrs. Battye, Adkins, and Dawson, also showed very good birds, and took prizes; also, Messrs. Haigh and Hartley. The greatest competition was in *Silver*.

We have next to do with classes that are peculiar to Sheffield, and which required separate Judges. Messrs. Ellison and Hellewell undertook the task, and performed it to the entire satisfaction of the exhibitors. We allude to *Red Caps*, of which there were three classes. They appear to have much in common with *Golden-spangled Hamburghs*; and probably, at some remote period, both belonged to the same stock. The colours are the same: both are spangled. The *lop-comb*, which would be fatal to the *Hamburgh*, appears to be a merit to the *Red Cap*. The *overgrown-comb* is also desirable: and many of the best birds had what we in other birds should term excrescences growing at the back of their combs, in the form of eccentric spikes, sticking in all directions. The breed is, however, unquestionably pure as adults; and *Chickens* were all alike. Messrs. Hollins, Patterson, and Berks were first in adults; Messrs. Quin, Oates, and Crook in *Chickens*: Messrs. Hollins and Woollen for single cocks; Messrs. Scott, Ashcroft, Vernon, and Dawson were successful in the *Various* class, which produced *Guelderlands*, *Sultans*, *Silkie*s, &c.

Mr. H. D. Bayley and the Rev. G. F. Hodson deservedly headed the lists for Golden Sebright *Bantams*; while the Hon. W. W. Vernon and Mr. Spary did the same in Silver. The first prize birds in both classes were very good. Blacks and Whites were not numerous, and in the former the deaf ears were not white enough. Messrs. Cattell and Crossland were first, and Messrs. Finch and Hardy second. Then came the beautiful Game Bantams. The competition was close, as all the prize birds were excellent; Mr. Thornton was first, hard run by Mr. Worrall, who was followed by Mr. H. D. Bayley.

Mr. Fowler was, as usual, first in *Geese*, and Mr. Price second. Mrs. Seamons first in Aylesbury *Ducks*, Mr. Fowler second and third. These birds were not so heavy as usual. The same gentleman took all the three prizes for Rouen Ducks—no mean exploit. Miss Steele Perkins headed the list for Buenos Ayrean; Messrs. Burn and Baines second and third. Mr. Dixon took first and second for Varieties; Mr. Dawson third.

There remained one more great struggle—a Sweepstake of £1 for *Game Cocks*. It was thus divided:—First prize, £15; second, £8; third, £5; fourth, £2 10s.; fifth, £1 10s. It was indeed a struggle, and at last was decided thus:—

1st. Captain Hornby	4th. Mr. Mellows
2nd. Mr. Archer	5th. Mr. Sumner
3rd. Mr. Moss	

Nothing could exceed the beauty and condition of most of these birds.

We have said enough to convince our readers that this was a good Show. We have the satisfaction to state, on the best authority, it was a most successful one in a financial point of view. The exertions of the gentlemen forming the Committee richly deserved this result: they are essentially acting men. The thanks of all those who were connected with it are due to Messrs. Overend, Ellison, Broadbent, Harvey, and Hellewell. We have seldom, in our experience, seen a Committee so harmonious and so energetic.

The Judges were the Rev. R. Pulleine and Mr. Bailly.

SPANISH.—First, Mrs. J. C. Hall, Surrey House, Sheffield. Second, Miss M. L. Rake, Brandon Hill, Bristol. Third, J. Garlick, Hygeia Street, Everton, Liverpool. Fourth, J. Dixon, North Park, Bradford. Highly Commended, Miss M. L. Rake; W. Bailey, Pleasant Cottage, Lower Kennington Lane; S. H. Hyde, Moss Cottage, Ashton-under-Lyne; A. F. Watkin, Freedom Cottage, Walkley. Commended, J. Parsons, Audenshaw, near Ashton-under-Lyne. *Chickens.*—First, Miss M. L. Rake. Second, C. Atkins, Sewer Cottage, Thames Bank, Pimlico. Third, T. Robinson, the Gill, Ulverstone. Highly Commended, Miss A. Watkin, Freedom Cottage, Walkley; Mrs. Taylor, Hampden View, Sheffield. Commended, J. Price, Londonderry, Bedale, Yorkshire. *Hens.*—First and Second, Mrs. J. C. Hall. Highly Commended, Miss M. L. Rake; W. Dawson, Selly Oak, near Birmingham. Commended, J. Parsons, Audenshaw, Ashton-under-Lyne; J. Garlick. *Single Cock.*—First, Mrs. J. C. Hall. Second, C. Brown, Carver Street, Sheffield. Commended, Miss M. L. Rake.

DORKINGS (Coloured).—First, W. Evans, Hurst House, Prescott. Second and Third, The Hon. W. W. Vernon, Wolseley Hall, Rugeley. Fourth, A. Potts, Hoole Hall, Chester. Highly Commended, G. Botham, Wexham Court, Slough; C. H. Wakefield, Malvern Wells. *Chickens.*—First, C. H. Wakefield. Second, W. Dolby, jun., Syston Hall, Grantham, Lincolnshire. Third, G. Chadwin, Tollard Royal, Salisbury. Highly Commended, The Hon. W. W. Vernon.

DORKINGS (White).—First and Second, J. Robinson, Vale House, Garstang. *Chickens.*—Prize, J. Robinson.

DORKINGS (Single Cock, of any colour).—First, Capt. Hornby, Knowsley Cottage, Prescott. Second, J. Robinson, Vale House, Garstang. Highly Commended, G. Botham, Wexham Court, Slough.

GAME (White and Piles).—First, Mrs. H. Sharp, Bradford. Second, T. H. D. Bayley, Ickwell House, near Biggleswade. Third, G. Robinson, Thorpe Hall, near Worksop. Highly Commended, W. Hopkinson, Worksop. *Chickens.*—First, J. Camm, Farnsfield, Southwell, Notts. Second, G. Robinson. Highly Commended, W. Bentley, Scholes, near Cleckheaton.

GAME (Black-crested and other Reds).—First, The Hon. W. W. Vernon, Wolseley Hall, Rugeley. Second, A. Sutherland, Burnley, Lancashire. Third, E. Archer, Malvern. Highly Commended, G. W. Moss, the Beach, Aighburth, Liverpool; T. S. Morris, Black Swan Hotel, Sheffield; W. Mellows, Carburton, near Ollerton; G. D. Jarvis, Tickhill, near Rotherham. Commended, Capt. Hornby, Knowsley Cottage, Prescott; W. Coupe, Langwith, near Mansfield, Notts. *Chickens.*—First, R. Swift, Southwell, Notts. Second, W. Coupe. Highly Commended, G. W. Moss; W. Coupe. Commended, J. Flint, 4, Bank Street, Sheffield.

GAME (Blacks and Brassy-winged, except Greys).—First, W. Dawson, Selly Oak, near Birmingham. Second, Mrs. Sharp, Bradford. Third, S. Marsh, Ridgeway, Chesterfield. *Chickens.*—First, E. Bell, Walkley. Second, T. Sanderson, 149, Gibraltar Street, Sheffield.

GAME (Duckwings and other Greys and Blues).—First, H. Adams, Beverley. Second, J. Bradwell, Southwell. Third, G. W. Moss, the Beach, Aighburth, near Liverpool. Highly Commended, G. Robinson, Thorpe Hall, near Worksop, Notts. Commended, J. Doncaster, Ollerton Hall, Notts; E. Holland, Grasshill, Chesterfield. *Chickens.*—First, S. Matthew, Chilton Hall, Stowmarket, Suffolk. Second, Mrs. H. Sharp, Mill Lane, Bradford. Highly Commended, F. Hardy, Bowling Old Lane, Bradford.

GAME (Single Cock, of any colour).—First and Second, R. Woods, Osberton, Worksop, Notts. Third, J. Doncaster, Ollerton Hall, Notts.

Fourth, W. Dawson, Selly Oak, near Birmingham. Highly Commended, G. W. Moss, Aighburth, near Liverpool; Capt. Hornby, Knowsley Cottage, Prescott; R. Woods; W. Mellows, Carburton, near Ollerton; A. Sutherland, Burnley, Lancashire. Commended, G. W. Moss.

MALAYS.—First, N. Sykes, 5, Devonshire Terrace, Globe Road, Mile End, London. Second, C. Ballance, Taunton, Somerset. Third, A. G. Brooke, Cumberland Street, Woodbridge, Suffolk.

COCHIN-CHINA (Cinnamon and Buff).—First, H. Tomlinson, Balsall Heath Road, Birmingham. Second, T. Stretch, Marsh Lane, Bootle, near Liverpool. Third, H. James, Walsall. Highly Commended, J. K. Fowler, Prebendal Farm, Aylesbury. *Chickens.*—First, J. K. Fowler. Second, H. W. B. Berwick, Helmsley, Yorkshire. Highly Commended, G. J. Simpson, Hummanby, near Filey.

COCHIN-CHINA (Brown and Partridge-feathered).—First, H. James, Walsall. Second, T. Stretch, Marsh Lane, Bootle, near Liverpool. Third, C. Felton, Erdington, near Birmingham. *Chickens.*—First, S. R. Herbert, Powick, near Worcester. Second, C. Felton.

COCHIN-CHINA (White or Black).—First, R. Chase, Moseley Road, Birmingham. Second, W. Titterton, Birmingham. Third, W. Dawson, Hopton Mirfield. *Chickens.*—First, Mrs. S. R. Herbert, Powick, near Worcester. Second, R. Chase. Highly Commended, W. Dawson.

COCHIN-CHINA (Single Cock, of any colour).—First, H. Tomlinson, Balsall Heath Road, Birmingham. Second, James Cattell, 26, Worcester Street, Birmingham. Highly Commended, Mrs. S. R. Herbert, Powick, near Worcester; G. J. Simpson, Hummanby, near Filey.

BRAHMA POOTRAS (Light or Dark).—First, G. Botham, Wexham Court, Slough. Second and Third, R. Teebay, Fullwood, near Preston. *Chickens.*—First, R. Teebay. Second, G. Botham. Highly Commended, G. Botham. *Single Cock.*—First, G. Botham. Second, R. Teebay.

HAMBURGS (Golden-pencilled).—First, T. Robinson, the Gill, Ulverstone. Second, H. Marshall, Cotgrave, near Nottingham. Third, W. C. Worrall, Rice House, near Liverpool. Commended, Messrs. Bird and Beldon, Eccleshill Moor, Bradford. *Chickens.*—First, J. Dixon, North Park, Bradford. Second, W. Maude, Bingley, Yorkshire. Third, Messrs. Carter and Valiant, Poulton-le-Flyde. Highly Commended, Mrs. J. H. Kilner, Aker House, Wibsey, near Bradford. Commended, W. Maude.

HAMBURGS (Golden-spangled).—First, W. R. Lane, Bristol Road, Second, J. Davies, Bull Street, Harborne, near Birmingham. Third, W. C. Worrall, Rice House, near Liverpool. *Chickens.*—First, H. Carter, Uppertong, near Holmfirth. Second, G. Brooke, East Parade, Huddersfield.

HAMBURGS (Gold or Silver-spangled).—First, Messrs. Haigh and Hartley, Lip Hill Bank, Holmfirth. Second, C. Hayes, Walkley, Sheffield.

HAMBURGS (Silver-pencilled).—First, E. Archer, Malvern. Second, J. Dixon, North Park, Bradford. Third, Rev. F. B. Pryor, Beaumont Rectory, Stevenage, Herts. Highly Commended, E. Archer. *Chickens.*—First, G. Griffiths, 7, St. Swithen Street, Worcester. Second, Mrs. H. Sharp, Mill Lane, Bradford. Third, H. W. B. Berwick, Helmsley, Yorkshire. Highly Commended, T. Keable, Rowde Field Farm, Devizes; E. Archer, Malvern. Commended, W. Maude, Bingley Yorkshire.

HAMBURGS (Silver-spangled).—First, R. Teebay, Fullwood, near Preston. Second, J. Dixon, North Park, Bradford. Third, Mrs. H. Sharp, Mill Lane, Bradford. Highly Commended, G. Chadwin, Tollard Royal, Salisbury; Mrs. H. Sharp. Commended, G. Daft, Halloughton, Southwell. *Chickens.*—First, Messrs. Bird and Beldon, Eccleshill Moor, Bradford. Second and Third, Mrs. H. Sharp.

HAMBURGS (Single Cock, Gold or Silver-spangled).—First, W. C. Worrall, Rice House, near Liverpool. Second, E. Archer, Malvern. Highly Commended, R. Baines, Bow Street, Sheffield. Commended, M. Greenwood, Burnley; J. Dixon, North Park, near Bradford; C. Hayes, Walkley, Sheffield.

POLANDS (Black with White Crests).—First, T. Battye, Holmbridge, near Huddersfield. Second and Third, J. Dixon, North Park, Bradford. *Chickens.*—First, J. Dixon. Second, T. Battye.

POLANDS (Golden).—First and Third, J. Dixon, North Park, Bradford. Second, G. C. Adkins, Lightwoods, near Birmingham.

POLANDS (Silver).—First, J. Dixon, North Park, Bradford. Second, W. Dawson, Selly Oak, near Birmingham. Third, G. C. Adkins, the Lightwoods, near Birmingham. *Chickens.*—First, Mrs. H. Sharp, Mill Lane Bradford. Second, G. C. Adkins.

POLANDS (Single Cock, of any colour).—First, F. Hardy, Bowling Old Lane, Bradford. Second, D. Wilson, Sutton Fields, near Crosshills.

REDCAPS.—First, J. Hollins, Owlerton, near Sheffield. Second, J. Pattison, Dee Street, Sheffield. Third, Ruth Birks, Upper Hallam, Rivelin. Highly Commended, B. Oates, Owlerton, near Sheffield. *Chickens.*—First, J. Quin, Nether Green, Fullwood, near Sheffield. Second, B. Oates. Third, J. Crookes, Owlerton, Sheffield. Commended, W. Adams, Adwick-upon-Deerne, near Swinton.

REDCAPS (Single Cock).—First, J. Hollins, Owlerton, near Sheffield. Second, J. Woollen, Heeley. Highly Commended, B. Oates, Owlerton, near Sheffield.

ANY OTHER DISTINCT BREED.—First, J. Scott, the Brewery, Skipton-in-Craven. Second, J. Ashcroft, Waterloo, near Ashton-under-Lyne. Third, The Hon. W. W. Vernon, Wolseley Hall, Rugeley. Fourth, W. Dawson, Hopton Mirfield.

BANTAMS (Gold-laced).—First, T. H. D. Bayley, Ickwell House, near Biggleswade. Second, Rev. G. F. Hodson, North Petherton, near Bridgewater.

BANTAMS (Silver-laced).—First, the Hon. W. W. Vernon, Wolseley Hall, Rugeley. Second, U. Spary, Margate Street, Dunstable. Highly Commended, Rev. G. S. Cruwys, Tiverton, Devon. Commended, Mrs. A. G. Brooke, Cumberland Street, Woodbridge, Suffolk.

BANTAMS (Black).—First, J. Cattell, 26, Worcester Street, Birmingham. Second, G. Finch, Worcester.

BANTAMS (White).—First, J. Crossland, jun., Wakefield. Second, F. Hardy, Bowling Old Lane, Bradford.

BANTAMS (Game).—First, F. Thornton, High Street, Heckmondwike,

near Leeds. Second, H. Worrall, Spring Grove, West Derby, near Liverpool. Third, T. H. D. Bayley, Ickwell House, near Biggleswade.

GEESSE.—First, J. K. Fowler, Prebendal Farm, Aylesbury. Second, J. Price, Londonderry, Bedale, Yorkshire.

DUCKS (White Aylesbury).—First, Mrs. M. Seamons, Hartwell, Aylesbury. Second and Third, J. K. Fowler, Prebendal Farm, Aylesbury. Commended, Mrs. M. Seamons.

DUCKS (Rouen).—First, Second, and Third, J. K. Fowler, Prebendal Farm, Aylesbury.

DUCKS (Black East Indian).—First, Miss S. Perkins, the Cottage, Sutton Coldfield. Second, S. Burn, 1, East Terrace, Whitby. Third, R. Baines, Bow Street, Sheffield.

DUCKS (any other variety).—First and Second, J. Dixon, North Park, Bradford. Third, W. Dawson, Hopton Mirfield.

TURKEYS.—First, J. Dixon, North Park, Bradford. Second, C. Laugh-ton, Sutton, Chesterfield.

GAME COCKS.—First, Capt. Hornby, Knowsley Cottage, Prescott. Second, E. Archer, Malvern. Third, G. W. Moss, the Beach, Aighburth, Liverpool. Fourth, W. Mellows, Carburton, near Ollerton. Fifth, J. Sumner, North Bar Street, Beverley. Highly Commended, G. W. Moss; Capt. Hornby; J. Hindson, Barton House, Everton, Liverpool. Commended, G. S. Cruwys, Tiverton, Devon.

THE BERMONDSEY ROLLER PIGEON.

In your paper of the 22nd ult. Mr. Brent asked for a description of the "Roller," or "Bermondsey Roller," as he terms it. Now, though I am not a professional writer, and I may be considered presumptuous to offer information to such an authority as Mr. Brent, still, as I have kept and bred every variety of the Tumbler, including the Roller, my remarks may not be uninteresting to some of your numerous readers.

The Roller is, strictly speaking, a Tumbler; and any one who keeps a large stock of these birds has one or more Rollers in the flight. Their distinguishing characteristics are that they do not, as Mr. Brent says, "throw a clear summersault, one at a time," but fifteen or twenty times in one continuous "roll;" hence their name. This rolling, as we term it here in Staffordshire, quite incapacitates the bird for high flying, as it is astonishing the quantity of ground, or rather air, a bird which is a good Roller will lose. In fact, I have seen birds which could not fly from one building to another without rolling; and I have never seen one of these birds rise higher than a church-spire; and some will roll so low as to fall on any wall or low building; and this, in the eye of a fancier, is considered a grand point in the bird's favour. The bird itself is about the size, or, if anything, rather smaller than the common Tumbler, and of every variety of colour; neat-looking birds, but head and beak almost as long as the common House Pigeon. The breast is very prominent, back short, and feet small and neat, sometimes feathered, but this is quite accidental. The tail is rather shorter than that of most other Pigeons, which may account for their rolling.

In the iron district of South Staffordshire, and in and near Birmingham, they are very common, and pass under the names of Cut-tails, Rollers, and Spinners. Many fanciers keep very select flights of them. They require a little judgment in the selection of young ones for store; as, although common Tumblers will "throw" Rollers, still a pair of valuable Rollers will most likely "throw" five-sixths of their young ones good for nothing. Good ones command high prices.

I will just add an instance which has come under my notice to show you the instinct of Pigeons. On going into my Pigeon-loft this morning, I observed that a pair of Almond Tumblers had thrown one of their eggs out of the nest which was placed on the floor. The birds had sat about fourteen days; and, although the egg was cold, I placed it in the nest to give it a chance of hatching. On going by the nest ten minutes after, I saw that the egg was again on the floor. Fancying it was accidental, I again put it in the nest; but judge of my surprise, on entering the loft an hour or two afterwards, to see the egg carried a yard and a half from the nest, and that over a piece of timber six or eight inches high. How it was carried I do not know; but on examining it, it proved to be added or unimpregnated, whilst the other contains a young one.—ANDY HANDY.

UNITING SWARMS.

I HAD a first swarm come off about a week ago, which was hived. A second swarm from another hive came off five days after, which was hived, placed on a piece of perforated zinc, and put on the top of the first swarm; the slides were withdrawn, and it was allowed to stand till a quarter past nine next night.

It was then dashed out on a table, and the first swarm placed over it; but they fought till they had killed about four ounces of bees. Now, had both been chloroformed would they have united better? They say sprinkling bees with sugar, dissolved in ale or water, sticks them together, and makes them fight more; and they, therefore, in this part (north), dust them with flour. Is this a good plan?

When bees hang out two or three days, but do not swarm, would it not be better to drive them, and so save the trouble of watching?

The little book by Payne you publish recommends chloroform. It is much easier used than the puff-balls. Is it generally considered better? or does it kill more than puff-balls?

I hived a first swarm into one of the new observatory hives sixteen days since, and they have nearly filled it with comb and honey. Should I put a glass or anything on?

What is the cause of a swarm going back to its parent hive? Recently I had a first swarm go back, and to-day I have had a second swarm do the same.

Is it a good plan to kill some of the drones after twice swarming? as one of my hives that has swarmed twice has a very large number.—A. B.

[There is not much difficulty in uniting families of bees at swarming time, provided only a few days intervene, but the uncertainty is much increased where the first hived bees have remained long enough to make a good many combs. For instructions as to the mode of accomplishing the business you had better refer to some practical work on the subject. In Taylor's "Bee-keeper's Manual," published by Groombridge and Co., London, you will find, at the cost of 4s., detailed information as regards this and other points on which you need to be instructed. We are not friendly to the use of chloroform in bee management. There is nothing very unusual in the return of the queen bee to the original hive on swarming; but generally there is a re-issue at no very long interval. As to killing supernumerary drones, you had better not attempt it in any piecemeal way. In the book we have recommended for your guidance this subject is remarked upon.]

SHIFTING BEES WITH THEIR COMBS.

I HAVE a common straw hive full of bees, so much so that the hive can hardly hold them. No swarm has taken place as yet; and as the season is too far advanced, I do not wish to see a swarm now; but I desire to shift the whole colony into one of Taylor's hives, with three glasses on the top, how must I proceed?—H. M. Liverpool.

[The question you put to us as to the expediency of shifting an old full stock of bees, with their combs, into another hive, has often been discussed in our columns. We have never countenanced such a proceeding at any time; but at this season of the year the attempt would assuredly end in a sad mess, if not the total destruction of the stock. An experienced apiarian has given, in one of our recent numbers (page 173), the details of a mode of stocking a new hive in the spring by driving, from which you might probably derive some useful ideas; but any extraordinary operation of the kind should only be attempted by an experienced hand.]

OUR LETTER BOX.

SPANISH COCK.—"My best Spanish cock has been ill for the last fortnight, and does not appear to be getting any better. One side of his face is excessively swelled with matter coming from it. His eye is quite closed up. He seems drooping and dull. What can be done for him?"—ANNA.

[We fear this is a hopeless case. It is one peculiar to Spanish fowls, and we have never seen a cure. Purging, giving daily one grain of sulphate of copper in soft food, and washing the face with cold vinegar and water are the only remedies that we can suggest.]

LONDON MARKETS.—JULY 11.

POULTRY.

Prices remain much as last week. The heat of the weather causes fluctuations, but the average has not changed much.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls	6 0	to 6 6	Turkeys	0 0	to 0 0
Smaller ditto	3 6	„ 4 6	Pigeons	0 8	„ 0 9
Chickens	2 3	„ 3 0	Guinea Fowls	0 0	„ 0 0
Geese	6 0	„ 6 6	Rabbits	1 4	„ 1 5
Ducklings	3 0	„ 3 3	Wild ditto	0 8	„ 0 9

WEEKLY CALENDAR.

Day of Mnth	Day of Week.	JULY 19—25, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
19	Tu	<i>Falkia repens.</i>	30.126—30.026	79—42	N.	—	6 af 4	5 af 8	41 a 9	19	5 56	200
20	W	<i>Hovca longifolia.</i>	29.995—29.681	78—54	S.W.	.03	8 4	4 8	52 9	20	6 0	201
21	Th	Sun's declin. 20° 33' N.	29.822—29.718	72—42	W.	—	9 4	3 8	3 10	21	6 4	202
22	F	<i>Hlinnea elegans.</i>	29.929—29.889	70—56	S.W.	.12	10 4	2 8	18 10	22	6 7	203
23	S	<i>Hinnca hydrangea.</i>	29.898—29.404	80—54	S.W.	.04	12 4	1 8	35 10	23	6 9	204
24	SUN	5 SUNDAY AFTER TRINITY.	29.803—29.479	74—57	S.W.	.02	13 4	VII.	1 11	24	6 11	205
25	M	St. JAMES. DUCH'S. CAMB. B. 1797	29.698—29.416	74—47	W.	—	15 4	58 7	37 11	25	6 12	206

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 73.1° and 51.8°, respectively. The greatest heat, 89°, occurred on the 23rd, in 1854; and the lowest cold, 39°, on the 19th, in 1851. During the period 126 days were fine, and on 98 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

STOVE AND ORCHID-HOUSE.

CALCEOLARIAS (Herbaceous).—Sow seeds; the compost to be equal parts of peat or leaf mould, loam, and rotten dung, with a small portion of sand. Place a layer of broken crocks two inches thick at the bottom of the pot; then fill up within half an inch of the rim with the compost, passed through a fine sieve. After the pot has been gently struck on the potting-bench to settle the soil, the surface must then be made level with a flat piece of wood, or the bottom of a small garden pan or saucer. Sprinkle the seeds regularly over the surface, do not cover with soil, and water with a fine rose; then to be placed in a cold frame, and be kept shaded from the sun.

CHOROZEMA.—The beauty of this genus for early spring display is generally appreciated, and, therefore, requires no commendation from me. They delight, like most other New Holland plants, in sandy peat containing plenty of fibre, and require plenty of air at all times, and also to be kept constantly moist, but never very wet. A large pot and frequent stopping will soon produce a fine specimen.

EPACRIS.—The varieties of this genus are most useful for the adornment of the conservatory in early spring. They delight in fibrous peat, broken rough, mixed with fine white sand. The young plants to be frequently stopped by pinching off the points of the shoots while growing, to induce them to throw out laterals; those again to be stopped until the plants have attained a size sufficient to warrant their blooming.

EUTAXIA MYRTIFOLIA.—It is a profuse and early bloomer. During the summer and autumn every new shoot should be stopped as soon as it has attained two or, at most, three joints: by such treatment it can be easily formed into a neat, compact specimen.

STOVE AND ORCHID-HOUSE.

Pay every attention to specimen plants in the stove. Keep them neatly tied to sticks, or trellises, as the case may require. Give them a plentiful supply of water, and, if not in flower, syringe them frequently over-head.

STANTHOPEAS.—About the end of this or the beginning of next month is the most proper time to remove and repot them. Persons who wish to grow fine specimens ought to put them in large baskets, or pots, so that they may not require to be shifted for several years, as then the plants grow much finer and flower better than when annually shifted. Now, as soon as they have done flowering they commence growing, when they should have plenty of heat and moisture until they have completed their pseudo-bulbs, when they should be reduced to a comparative state of rest by gradually withholding water until they show flower; then to be supplied with atmospheric moisture, but should have no water at the root, or at least but a small portion, until they begin to grow. As all the plants belonging to this genus push their flowers downwards, it is advisable to have them elevated, or put in baskets, where the flowers can get through and show themselves to advantage.

No. 564.—VOL. XXII. No. 16.

FORCING-HOUSES.

FIGS.—Give the fruit that is ripening the benefit of the sun, by fastening on one side the leaves that shade it.

PEACHES.—Keep the late house cool and airy, to prolong the supply of fruit as much as possible.

PINES.—See to the stools from which fruit have been cut. Earth them up, so as to cause suckers to strike root. Give them a brisk bottom heat, and proper supplies of water. You will thus gain time and assistance for the suckers from the declining strength of the parent plant as long as possible. It is now a good time to start a lot into fruit, as they will have two or three most favourable months for swelling, and will come in at a season when they are in very general request. Keep the bark-beds moderately moist, as in that state it will retain its heat much longer than if it is allowed to get dry.

VINES.—The outside borders of the late houses should be watered and mulched, if the weather continue dry.

WILLIAM KEANE.

MANAGEMENT OF ROSE CUTTINGS.

A QUANTITY of hybrid perpetual Roses which I propagated this time last year from cuttings out of doors, full in the sun, with no glass or shade of any kind over them, had a most unfortunate set off this spring; they were caught in the late frosts, and the early young wood was "done" for. The young wood of the *Deodars*, and the top shoots of *Pinus insignis*, and the top and bottom shoots, side shoots, and all, of *Cupressus funebris*, at the Experimental, were just done for like my poor Roses. They have all righted themselves, except the *funebris*, by this time, and I have made an experiment worth recording to restore the young frost-bitten Roses; but, like many other really good experiments, whether on man or beast, or on a Rose bush, it was a kill-or-cure one. I have no faith in a lingering cure. Depend upon it, if a physician took months and months to cure an Emperor of a malady, the way the cure was brought about was by Nature effecting her own purposes in her own way, contrary to the ways of his doctor; but, of course, the doctor could come in at the end of the cure, and take the credit of curing an Emperor; and it is just the same in gardening. We, too, have doctors of all degrees, from the real Doctor, my worthy friend, to the Irish doctor who extemporises on the make and fashion of flower-beds, and from them down to the roots of all the degrees. But any one of them who may dally with a sickly plant for a whole season may take credit to himself, and expect the same from others, but is not a bit better worthy of it than those who thought they cured an Emperor: and to put faith in the prescriptions of such doers is like leaning on a broken reed. If you merely hold on to the reed you are safe enough, and so you would be without it; but if you incline against the reed, so as to get off the centre of gravity, down you go, and it is all up with the experiment on the lingering system. But to be safe with a fast experiment in our line, one would need to know the laws and rules which govern the life and growth of plants

generally, also the particular season, or period, in the growth of plants when it is safe to operate upon them experimentally; and as every family of plants has its own particular period when it is more safe to put it through any unusual ordeal, practical doctors have an immense power over those doctors whose knowledge of plants is confined simply to the laws of life and action—the physiology of the thing.

Well, the first consequence of the harm done by the frost to my young Roses was to make them a prey to myriads of green fly; but Carley's self-acting fumigator coming in just at the time—or coming out, as one might say, so frightened the host, that the very next thunder-storm washed them all into the Thames, and I have hardly seen any since. But a much worse enemy came soon after—the little caterpillar which eats the under side of the leaves, and which makes the upper side look as if the leaf were being prepared for a collection of skeleton leaves. I killed hundreds of them with my finger and thumb, also beat the bush, and laid the rascals low in the dust, and stamped on them, and also powdered fresh soot on the bushes, and so kept them from actually destroying every leaf in the garden, which brought me up to midsummer, when I could count how many Roses died with that frost, or were so nearly dead as not to be worth a thought. I also learned a most useful lesson. We all of us put in our Rose cuttings too long by half—that is, too much under ground. It is all very well if you go on the old coaching style, put in the cuttings one autumn, and remove them the next, or the second-next autumn; but if you put them in in August, and have to transplant them early next spring, as I did, it will not do to plant them so deep as my cuttings were put in, and the consequence I can now tell to my cost.

The part of the cutting which is deep in the earth is just above the surface of the ground at the first transplanting, and is as tender as if it came out of Jamaica, as compared with another of the same kind of Rose which was never much buried as a cutting. My Roses were of the strongest and sweetest Perpetuals; and all I wanted them for was merely to cut Roses for the house, and to prove a few kinds on their own roots, as against the same on the Dog and Manetti stocks; and when the plants get too big for me I give them away, and so take a fresh lot of cuttings every year to keep up the game. After the first bloom is nearly over with all the perpetual Roses, without exception, they make a fresh start of growth from the tops, or from a little below the tops where they have flowered; and I can see now quite clearly, that it is on the proper understanding of this part of *the life of a young Rose* that future success or failure depends.

Begin with my own Roses—my young ones. They were frost-bitten, were hampered with “varmint,” bloomed very weakly, looked spindly the while, and made a start for second growth before the first bloom was over. Now, mark my words, all the old growth below this fresh growth was the foundation of the future plant; and no matter what the kind of plant is, if the foundation of it is bad it will never cease to be more liable to diseases than one of the same kind on a healthy foundation. Roses are more liable to this lot than almost any other plants. But take it in another light, and say the first growth is like the wick of a candle. Then, if the wick is bad, no matter how often it is dipped, or what quantity of fat is put on it, or of bleached wax either, it would never blaze properly under a Waltonian Case; and it is just the same with a plant. If the first growth is bad and blistered, cut it down, and have a fresh start sooner than run the risk of a cripple for life. That was what I did with all my frost-bitten Roses. After the first flower was over, and the fresh start for another growth had commenced, I headed them all down to the ground in the height of midsummer,—a severe trial you will say. Nothing of the kind, but quite the reverse, and one whole season is gained, and a sound bottom. Next winter they would

need to be cut down close to get rid of the same wood, and next year they would break just as they have done already, and would be no better at the end of next October twelvemonths than they will be this autumn. Roses, like Peach trees, are liable to many mishaps in spring from cold, blights, and insects; but no trees are less liable to have the midsummer shoots injured; and these are the shoots for the foundation of this batch of Roses. They look remarkably well just now; and it strikes me that the middle of June is the best time to cut down closely all kinds of diseased Roses, all sluggish climbers under ten years of age, and every plant of any age which has the seeds of canker in its blood. That is my firm conviction, and I could refer to many cases in my own practice which would go far to prove the same thing; only people do not like to write so much out of the common run of practice, until one here and there gets so hardened as not mind what “they say” in the slightest degree.

Another thing is as sure as that the pen is in my hand—namely, that midsummer is about the best time to put in Rose cuttings when they are to be struck without glass or anything over them: that experiment I am just proving. I summer-pruned all my Roses after I had put the frosted ones to rights. I have them on their own roots, and that makes them require more room than I can well afford; so that I am under the necessity of giving them a good cutting out after the first bloom is over—but they pay me for it in the autumn crop. This time I took the short spurs under the flowers for cuttings; some of them not more than two inches long, and none quite four inches. They were put in, each kind by the side of the parent plant, and only one inch deep. In three weeks they are callosed; and in another three weeks they will be rooted and fit to move. Every one of the Hybrid Perpetuals, Bourbons, Teas, Chinas, Noisettes, climbing Roses, and a great many of the hybrid summer Roses, will come that way as fast as from budding. I have the advantage of the Cocoa-nut fibre and refuse for all my cuttings; and nothing I ever heard of is one quarter so good to root cuttings, and to sow seeds and rear seedlings in. I have not used one particle of sand for pot or border since I took to the fibre; and I very seldom use a crock in any of my small pots—only a little of the clean fibre without the dust instead of crocks; and that fibre will last a couple of years before it will rot. Very many seedlings, as tender and as delicate as any gardener in the three kingdoms has to do with, pass yearly through my hands under this treatment of no sand or crocks. All my cuttings, and many of them more delicate than the Golden Chain, are done in this Cocoa-nut stuff, and out in the open air; but when any very special kind is put in, it is damped twice a-day, and a mat is put over it from nine or ten A.M. till four or five in the afternoon: that keeps all the leaves erect till roots come to help them. The Rose cuttings get no shading. There is hardly a leaf on them to hurt. Old dry leaves, or bleached young ones, do no good to Rose cuttings, or to any others, if the cuttings are not under glass or something else: so I cut them off at once.

There is a good deal of misconception about leaves to cuttings, which has been inoculated into the public mind by one or other of the doctors spoken of. Leaves are good to cuttings, and leaves are no good but a great evil to cuttings, if you can make that out; and it requires the practical head and hand to do them both ways with equal success. There is no question at all about the matter. When you have a close place to put in the cuttings, leaves will cause many kinds to root faster than they would without them; but some kinds will root just as fast without leaves in the same close place. Out in the open air the case is reversed, or rather there is no case to put over them; and then leaves hurt a great number of kinds by sucking up the last drop of sap out of the cuttings before they themselves are shrivelled up for lack of the needful supply of sap. But some sappy

leaves hold on even in the open air, and so hasten the rooting *as they say*, which leaves ample room to doubt; but in the absence of actual and most carefully conducted experiments to prove what they say, we shall take it for granted. One leaf, or at most two leaves, are quite enough for one Rose cutting from the middle of June to the last of August. The little side spurs, slipped off with a heel, make the best practical cuttings. One inch deep is quite enough for summer cuttings; and they should not lack for want of water from the day they are put in till they are rooted. The fact is, you take them at the height of the tide, and there must be no ebbing till the rooting is completed, as the least neglect or awkwardness might spoil all in one day; but tide, time, and temper would be gainers if all such cuttings were lifted with a trowel as soon as the Carnation layers were potted in September, and were planted out in rows on a newly-made bed. In that case they should not be pruned back till the first bud breaks in the spring.

At the Experimental Garden the Roses bloomed very finely this year. Every dwarf Rose there is on its own roots, and the standards are on the Dog Rose. The Manetti Rose will hardly live on its own roots in that garden; and no Rose in existence will live four years in it on the Manetti stock. A large bed of *Géant des Batailles*, with an edging of the *Malmaison* Rose, both on the Manetti, was pointed out to me the first day I saw that garden as a recommendation by THE COTTAGE GARDENER. They all looked well, but in three or four years there was hardly a live branch on one of them. Their bed and the situation were changed and remained under my own eye, but to no purpose. So you see there was a sufficient cause for us to try what else could be done, and it is done; and I question if the *La Reine* Rose was ever bloomed better, than it bloomed there this season on its own roots. *Gloire de Rosamene* does as badly hereabouts as the Manetti: it is not worth a straw. Mr. Wilmore, the nursery auctioneer at Sunbury, sold a small nursery stock last spring at Surbiton, when all the gardeners bought something; but two rows of Manetti, ten feet high, and four feet through each plant, in each row of about eight or nine yards in length, he could not get a bid for, and I bought the two rows next day for 1s. each, and almost forced them on Mr. Ross, one of the principal practicals of this place. That nursery was on a moorland, half black sand, and half bastard kind of peat, where the common Heaths grow very well. That seemed to me to be just the soil for the Manetti; for the Dog Rose on the best Bean land could not grow to one-half the size of the Manetti in the same time.

The last turn of Roses to-day must bring us back again to old Gilbert's "Vade Mecum," and the double-yellow Rose. No doubt something more than we yet know of may be done by double working. Many splendid Roses do not open well; we have not the exact kind of stock for them. Some are shy bloomers, and all such ought to be treated as Gilbert's father-in-law taught about the yellow Rose—say, the *Cloth of Gold*, *Isabella Grey*, and some fine newer ones, which will neither bloom nor do anyhow. The way to serve them is to let them get wild as it were, and not prune them, summer or winter, till they first show for bloom, if it were ever so many years; then do as Gilbert said, prune all the small shoots off quite close next winter, thin the middle-sized shoots, and if there is no room to fill up, cut out also all the very strong shoots.

D. BEATON.

PROVINCIAL HORTICULTURAL SOCIETIES.

EXHIBITION AT KIRKSTALL ABBEY.

I AM not such a complete enthusiast in support of metropolitan and provincial exhibitions as to come to the conclusion that, in every case, it is the duty of employers and their gardeners actually to engage in them. I may,

ere long, advert to cases and circumstances in which it would contribute to the comfort and happiness of both quietly to stand aloof, and be the somewhat selfish participators in improvements from which they cannot help receiving advantage, even though for effecting these improvements they individually have contributed little or nothing. That these advantages have been realised cannot admit of a doubt. The employer is, or ought to be, better supplied merely from the stimulus to energy presented on every side to the gardener. The gardener from necessity, if not from choice, must exert himself, or he will be left alone in his glory and his indolence. Every man would naturally make himself a Pope if he could. They who, like gardeners, live much alone, are apt, gradually, to be tinged with a sort of felt, if not expressed, superiority. Such self-esteem is somewhat palliated by the circumstances. A man is not so greatly to be blamed for believing he is doing well enough when he has no opportunity of seeing others around him doing better. For humbling all such conceit, nothing is better than a first-rate exhibition-table. A felt inferiority, a seeming deficiency, are the first steps to unwearied exertion. Your remarkably clever people in their own estimation have the misfortune to be considered so in general only by themselves.

I say nothing of what even such provincial exhibitions have done for gardening. I pass over the fact that nurserymen have found them a good medium alike for securing fame and obtaining orders; but I do wish that the beneficial influence of such exhibitions on the community at large was more generally felt. The suggestive in utility and taste, to every one having a garden or a window plant, is no little matter. The promoting of a high-toned intelligent pleasure and the smoothing down of social eastships are still higher considerations.

Whatever we are engaged upon, we like change. Body and mind alike require it. This change will often secure for us a kind of rest even in labour. The resident in smoke-clouded large towns needs this change the most. Such change, if it involves for a short time the giving up remunerative labour, is not time lost—the whole system becomes nerved and strengthened for increased energy. What more delightful than to pass from the noise and dust of crowded streets to tables and banks of flowers, breathe the pure air of heaven, and listen to melodious music, reflected and re-echoed by water and wood? Need we wonder that our fair sisters, who have more than sympathy with all that is flowery and beautiful, should linger amid such scenes, and alike give and receive honour by their commendation and approval?

Again, with all our boasted progress there is still something of the eastship of the Hindoo about us. It peeps out in every trade and profession; it boldly struts in political differences; and, perhaps, is never so bitterly prominent as amid our trifling religious distinctions. Thoroughly good people are thus kept apart whose hearts, on everything of importance, beat in accord and sympathy. Congregate such around a fine collection of flowers, and if not pretty well softened down themselves, the acts of courtesy exchanged whilst admiring a common object act as a pleasantly heated crucible that insensibly melts down and removes all the outside incrustation of misconception and prejudice; and we go home pleased with ourselves, delighted with everything and everybody, just because we have insensibly, in the presence of the beautiful, become more charitable and benevolent, and silently put to ourselves the question, Why, hitherto, has it pleased us to dwell on the seen or fancied imperfections of our neighbours, instead of their many perfections and amiabilities?

Influenced by such considerations, along with the desire for change, and to see and to be seen, some six thousands of the *élite* of Leeds and its neighbourhood met together on the afternoon of the 24th of June amid the romantic ruins of Kirkstall Abbey, so delightfully

embosomed in the vale of Airdale—and these only the forerunners of the crowds expected the following day from arrangements made with the different railways; and all, whether in the thronged tents, or traversing the roofless aisles, or walking on the green turf, or listening to the melody poured forth from five bands of music, or glancing at the rich, extremely diversified, and tasteful, though wide-sweeping dresses of the ladies—rivalled, as objects of beauty, only by the loveliness of the wearers and the flowers that competed for victory under mere canvass protection—all reminding us of gorgeous scenes never to be forgotten when Chiswick was in its young and palmy days.

That the Exhibition was a good one, so far as quality was concerned, may be inferred from the facts that Mr. Turner, of Slough, and Mr. Edwards, of York, contributed great masses of Geraniums; and Mr. Coles, of Manchester, late of Deptford, and Mr. Franklin, now gardener to James Garth Marshall, Esq., Headingly, but better known as one of the most successful metropolitan exhibitors as gardener to the late Mrs. Lawrence, contributed largely in collections of plants. According to our custom, leaving the minute account of prizes to the local papers, I would merely pick out a few of the prominent features of the Exhibition.

To all who had not witnessed a metropolitan Show, the Geraniums from Mr. Turner were the most attractive part of the Exhibition. The encomiums and notes of admiration bestowed upon them were endless. One lady, as a climax, declared she must leave them or she should be ill! Exhibitions confined to a certain locality soon lose their influence. The gardeners know pretty well what each and every of them can do, and can calculate pretty correctly the prizes they will receive. When exhibitors come from a distance, it is like dropping a bomb-shell in a comfortable snuggery. The wise quietly allow their self-satisfaction to get a good bump, and resolve to try and try again. Many of us have to thank Mr. Turner for shaking us out of our conceit and cleverness. The plants were splendid, as specimens, and not a leaf or flower out of place, though they had travelled so far on different rails. The kinds were partly old and cheap-priced, and partly new. The twelve large-flowering were—*Leviathan*, *Pet of the Flock*, *Sir Colin Campbell*, *Saracen*, *Prince of Wales*, *Flora*, *Prince of Prussia*, *Prince of Wales* (Hoyle's), *Topsy*, *King of Scarlets*, *Eugène Duval*, and *Carlos*. The fancies were—*Acme*, *Rosabellu*, *Princess Royal*, *Prima Donna*, *Columbine*, and *Madame Rougiere*.

Mr. Edwards, of York, who exhibited in all the sections, showed beautiful, compact, bushy plants, well grown and healthy, but with the foliage too conspicuous, and, consequently, the flowers too thin to compete with his formidable rival, in whose plants the whole strength almost of the plants is thrown into the massive flower-stems. Such plants as Mr. Edwards's looked as if they might do wonders in another year. Admirers as we are of the John Bull pluck, that, though beaten again and again, will never give up in despair, we were truly delighted to hear Mr. Edwards express his determination never to be satisfied until he turned out better plants than the prize-takers. We truly hope he will do so, and also that we may have the pleasure of seeing them. Other growers, as Mr. Eastwood, took third and extra prizes. Among a collection of twelve new Geraniums, sent out since July, 1857, and exhibited by Mr. Edwards, the most striking was *Sweet Lucy*, a very lovely thing, a French white fancy, with slight purple shading in the upper petals.

Of the collections of twenty stove, greenhouse, and fine-foliaged plants I can only speak from memory. Mr. Coles was first, and among them were a fine plant of *Statice Holfordii*, the fine-foliaged *Tupidanthus*, a beautiful plant of *Dipladenia crassinoda*, *Kalosanthes miniata superba*, *Pimelea mutabilis* (a fine plant, a little past its best), a

huge mass of *Croton variegatum*, a lovely well-bloomed plant of *Ixora coccinea*, *Rhopala De Jonghii* (with its pretty singular foliage), a beautiful plant of *Epaeris miniata splendens*, *Aphelaxis macrantha*, *Erica Easoniana*, *Rhopala magnifica* (with its fine graceful foliage), *Dipladenia splendens* (fine), a large *Allamanda Cathartica*, a beautiful *Cibotium Sieboldii*, *Kalosanthes coccinea*, *Phenocoma prolifera*; and if we forget some, we never can forget the charming foliage of the *Cyanophyllum magnificum*, the gem of the Exhibition, and the finest plant, so far as we are informed, of this charming novelty in England, the stratified and massive leaves measuring at their greatest length and breadth thirty inches by sixteen.

Mr. Franklin followed these with huge masses of *Begonia rex*, a plant of *Dracena ferrea*, *Ananas sativa variegata*, a fine plant of *Caladium bicolor splendens*, a large plant of *Ixora coccinea*, a gem of *Dendrobium nobile*, a huge mass of *Begonia Xanthina argentea*, a neat plant of *Clerodendron fallax*, *Aërides odorata*, a huge mass of *Allamanda Cathartica*, a fine plant of *Dracena ferrea picta*, fine plants of *Dieffenbachia picta* and *variegata*, a large plant of *Maranta zebrina*, and its next door, though, perhaps, higher-coloured neighbour, *Maranta Warscewiczii*, a name much easier to manage with the pen than the tongue.

As a sort of index of the taste for superior gardening near Leeds, and also of what strangers may expect to encounter when they choose to enter the lists on future occasions, I may mention, as one instance, that Mr. Franklin showed successfully small collections of Heaths, Ferns, Orchids, six stove and greenhouse plants, and three sixes of variegated fine-foliaged plants. Among the most conspicuous of these were fine plants of *Maranta regale* and *lineata alba*, huge plants of *Begonia rex*, *splendida argentea*, &c., *Dracena ferrea picta*, *Croton pictum*, *Caladiums*, *bicolor*, *pictum*, *picturatum*, &c., and a dense large-spreading bush of the pearl-dotted *Sonerilla margaritacea*. The same gentleman also exhibited a fine lot of seedling Begonias, with beautifully veined, dotted, and blotched foliage, which were highly commended; whilst a certificate of high merit was awarded to one of these, named *Marshallii*, combining but exceeding the striking good properties of *rex* and *grandis*. Mr. Franklin was warmly congratulated for raising this beautiful gem. There can be no question that *Marshallii* will stand first at present among these fine-foliaged plants. I would then make *grandis* second, and *rex* third general, instead of generalissimo.

The prizes for Gloxinias were taken by Messrs. Anderson and Batger, the latter gentleman being gardener at Emery House, the residence of Joseph Gott, Esq., where great improvements are being effected, and from which fine views are obtained of the old abbey and other objects of interest in Airdale. Among the Gloxinias was a fine mass of an upright-growing kind, named *Carthusiana*.

The fruit, on the whole, was medium in quality, and deficient in quantity, though there were not wanting fine specimens. In Pines and Grapes Mr. Batger was the most successful. Strawberries and Cherries had evidently partaken of the dry weather, which for two months previously had visited that neighbourhood. All united in saying it was too early to see the fruit growing of the neighbourhood to advantage. An exception must be made in behalf of a tastefully-arranged group of fruit, but which came from a distance, I believe, and was exhibited by a Mr. Wilson. The group, as a whole, was about three feet and a half in height. The base was formed of a round vessel covered with beautiful foliage, on that a framework was placed, like a wire trainer for creepers, and surmounted by another circular vessel; part of this open twiner, or pillar, was filled with flowers; flowers also peeped out on the lower dish, among the heaps of Cherries, Strawberries, and Nectarines. The upper dish was filled in a similar manner, but including magnificent Peaches and Apricots, centered by a nice

Queen Pine. The shaft, or column, between them was graced with Melons and Grapes in a pendent position, and set out with fine, rich foliage and flowers. If anything, the flowers were, perhaps, too numerous, but the idea was a happy inroad on the general practice of showing fruit all flat on dishes.

Vegetables were shown in good condition, though not in great quantity. The best tray of ten varieties belonged to Mr. Nicholson, and contained large Cabbage Lettuce, Kidney Potatoes, winter Onions, Carrots, Cauliflowers, green Marrow Peas, Tomatoes (ripe), Custard Vegetable Marrow, and a brace of Cucumbers. The second tray contained some fine Asparagus and Peas, but the Cauliflowers were not so good. I could get no information concerning the beautiful Pea shown in several stands. I was then using *Dickson's Favourite*, and had not got a Marrow in use.

The cottagers came out well as to quality. Cucumbers, three or four brace shown by them, were first-rate productions, each brace fairly matched, straight as gun barrels, crisp, and young, and all about twenty-two inches in length. Pity the gardener that competes with such cottagers. I presume that gardeners and amateurs got three prizes for Cucumbers, but in comparison of these cottagers' productions there was hardly a good brace if put together. I should like to know the means at such cottagers' disposal for turning out such results on the 24th of June. Assuredly we must bestir ourselves if we would not be walked over. The most successful cottager-grower, as far as I recollect, was Mr. James Netherwood, Deighton, and the same cultivator stood first for many things besides Cucumbers.

Two facts more connected with this Exhibition are worthy of notice. The first is, that twelve Judges were appointed—nurserymen and gentlemen's gardeners—from Halifax, Hull, Middleton, Lancashire, York, &c.; so that there was no difficulty in getting all the judging satisfactorily done in good time. How different when, at many provincial shows, a couple of men are expected in a couple of hours to discriminate the relative excellencies of some hundreds of different entries!

The second fact is, that for all the pleasure the public derived from this Exhibition, it is almost solely indebted to the enterprise and public spirit of one individual—Mr. T. Hawkins Appleby, 61, Briggate, Leeds. One cause of the decline of provincial societies is the jealousies and heart-burnings of their members. Business of all kinds is often better done by one individual than by clubs or societies.

Floral fêtes had been held in Leeds, but they have been discontinued of late years, and partly from the above causes. Last year, Leeds being honoured with the meeting of the British Association, Mr. Appleby was appealed to if he could not get up a floral and horticultural fête—gentlemen subscribing to help to defray the expenses. That fête, held also at the Abbey, was highly successful. On the faith of that success, when appealed to again, Mr. Appleby complied, though almost all, if not the whole, of the responsibility would have rested upon himself—so far as the pecuniary liabilities were concerned. These expenses, owing to the large posters and the advertising in all the large towns within railway distance, must have been large; but all, we trust, will be defrayed by the multitudes of visitors. Considering the uncertainty of our climate, few would have run such a risk. All honour to the spirit of one who has enabled so many to look back on the 24th of June as a red-letter day of pure enjoyment.

R. FISH.

THINNING GARDEN CROPS.

THERE are few operations in gardening which exercise a greater influence on the welfare of a crop than a timely and judicious thinning, like the pruning of a Vine, or a wall tree. A proper thinning is essential, not only for appearance but for absolute success. A fruit tree left in a state of confused growth will still

bear a something; but the produce of some crops left unthinned would be very poor indeed. For instance: a field of Turnips would not be worth much if left untouched with the hoe; and some garden crops are equally liable to suffer by the number of plants being often tenfold more than there is room to grow to perfection. As most plants having small seeds are of necessity sown much thicker than they are expected to perfect themselves, and in their earlier growth stand very close to each other, and of course draw each other into a weak and spindly growth, it is advisable to commence the thinning before this "drawing" takes place, or before it extends to any extent. This is especially advisable with such plants as are injured by an elongated neck. For instance: Radishes suffer by that; and even Onions, though they stiffen and become partially robust again, yet there is no question but they would have been better without the injury which their contact with each other occasioned. Onions, in fact, ought to be thinned as soon as they are large enough to handle. They need not be fully thinned at this time, a few may be left to take out afterwards; but if there is any danger of this latter thinning being neglected, let them be fully thinned at once. Generally speaking, Onions are sown in rows about a foot apart; and if the ground is good, they will bear thinning to about five inches or so apart in the row. They root much deeper than is generally expected; and where the ground has been trenched they will send their roots down nearly two feet in search of moisture in hot dry weather, provided the soil at that depth is such as to invite them so low. Carrots may have more room, as likewise ought Beet, both between the rows and between the plants in the row; these plants are very impatient of being left unthinned for any length of time. Parsnips ought to be thinned to their proper distance as early as they can be handled; and Turnips cannot be too soon attended to after they get the rough leaf. In fact, all crops that are sown where they are to stand to mature themselves require more or less thinning, excepting those produced from the larger-seeded kinds, as Broad Beans, Scarlet Runners, &c., which, being pretty certain to grow, are sown no thicker than they are expected to grow.

The old maxim of thinning in time cannot be too strongly urged on those having the management of kitchen-garden crops; for more depends on it than is generally supposed. In hot, dry weather, when Lettuce has to be sown where it is to mature itself, a timely thinning will in many cases prevent its running to seed, which it otherwise would do if left as sown. A timely thinning also enables the remaining plants to grow to a larger size than they would do if left to struggle against each other: besides which, the operation is easier and more quickly done when it is begun in time than when it has been delayed until the mass is in confusion. All these reasons tend to enforce the "thinning in time" of all gardening produce requiring this operation.

It need scarcely be said that vegetable crops are not the only crops that suffer by a neglect of the above rule. Fruit trees and fruit plantations are equally injured; and timber plantations, or rather plantations of young trees, are very much injured by their thinning being delayed. Many a plant, that would have made a useful and ornamental tree, is irretrievably ruined by being left to struggle for an existence, with, perhaps, half a dozen others equally suffering with itself. The axe of the woodman sometimes comes too late, the feature of the tree being altered; and instead of the stiff robust specimen, capable of resisting any amount of wind, there is one having more the character of the Indian Bamboo, elongated to a frightful extent, and nearly as thick at one end as the other. Thinning, therefore, is one of those important axioms which ought never to be lost sight of; and whether the object is a hotbed of early Carrots, a field of Turnips, or a young and rising plantation of timber trees, the law is equally binding on all; and its due observance cannot be too strongly urged on all interested in these matters.—J. ROBSON.

THE HERBARY.

(Continued from page 176.)

SECTION 2.—HERBS USED FOR THEIR PERFUME.

THOUGH perfumes are not absolute necessities of life, yet, as the organ of smell has been given to man in common with other animals, such plants as yield a grateful scent are highly valued; and there can be no doubt that the pleasing aroma arising from various plants is conducive to health, and is, to say the least of

it, an innocent enjoyment given to us for a wise purpose. In all ages the exhibition of a pleasing odour has been considered highly grateful. The ancients, as is well known, cast sweet-smelling woods and flowers on to a fire to do honour to their gods and heroes; and, in our day, the burning of strong-scented herbs is considered beneficial to health. My list of herbs used for their perfume is not extensive, and some of them cannot be grown in this country without the aid of a hothouse; but most of them can be grown in any suitable soil in the open air.

ALOYSIA CITRIODORA (*Sweet-scented Verbena*).—A half-hardy shrub, requiring a dry, deep, sandy soil. In the southern parts of Britain and in Ireland this aromatic shrub is hardy; in other parts it may be preserved alive by cutting down in autumn, and covering the roots with dry ashes, tan, or fern-fronds. It is propagated by cuttings of ripened wood, in a border, or by short, young, stubby shoots in sand under a bell-glass in a gentle heat. The grateful scent is obtained by distillation; but the spirit requires to be kept in closely stoppered bottles, or it will soon evaporate.

LAVENDULA SPICA (*Common Lavender*).—A well-known hardy low shrub, native of the south of Europe. It is easily propagated by cuttings. Take an old bush, and cut it up into short branches, and plant them thick like dwarf Box-edging during a moist time in May or June, scarcely one branch will die. Then in autumn take them up, and plant them in rows three feet apart, and the same distance from plant to plant. In two years they will cover the ground, and will produce abundance of spikes of flowers. This shrub loves a dry, deep, loamy soil, though its scented properties are most strongly developed in a limestone soil. It is grown largely in some parts of Surrey, and also in Huntingdonshire. Lavender scent is, perhaps, more highly esteemed than any other. It seems to please almost everybody.

The oil of Lavender is, of course, the concentrated essence of the perfume, and is obtained by distillation and gathering the oil that floats on the surface of the distilled water. The spikes must be gathered when in flower for distillation, and should always be cut in dry weather in the middle of the day. After the spikes are all gathered, trim in the bushes, dig the ground between them, and keep it constantly hoed. A plantation will, in a right soil, last for six or seven years. No manure should be given to them; for if the ground is rich, the shrubs do not ripen their wood, and then they are apt to perish in severe winters. Though this shrub is so well known, many of our readers have no conception how largely it is grown. I have seen fields ten acres in extent entirely cropped with this fragrant shrub. Such a sight would rather astonish some of our north-country farmers.

MENTHA ODORATA (*Sweet Bergamot Mint*).—A perennial plant, native of watery places in Britain. Requires a moist rich soil, and is easily increased by division, or by cuttings of the young tops, in a shady border, in May or June. The scent of this plant is very pleasing, and forms the basis of many of our advertised perfumes. Gather the herb when in flower on a dry day, and place the shoots, closely compressed, into a common still. As soon as the spirit has passed over, put it into bottles and stop them up very close; cover the corks with hot resin, to keep in the perfume. The dried leaves may be put into a drawer with such things as are desired to be scented, but such scent soon flies off on exposure.

MENTHA PIPERITA (*Peppermint*).—A well-known strong-scented perennial plant, increased by division or by cuttings of the young tops, planted in dropping weather in May or June. The scent is stronger if the bed of Peppermint is on a dry soil. The herb should be gathered in dry weather, as it yields then the finest oil or water.

RONDELETIA ODORATA.—A West Indian small tree that yields the far-famed *Rondeletia* perfume. The foliage when bruised is highly aromatic, and is peculiarly pleasant. I have grown plants of it, and placed the bruised leaves among linen in drawers, and found the scent given to the linen to be very persistent. The leaves are distilled in the West Indies, and the essential oil sent to England, where it is highly valued. It is a stove plant.

ROSMARINUS OFFICINALIS (*Rosemary*).—A hardy, rather upright growing shrub, native of the south of Europe. Increased by seed, cuttings and layers. In rich soils this shrub, like Lavender, will not bear severe frost. It should, therefore, be planted in dry gravelly soil, or loam mixed with old lime-rubbish. Sow the seeds in May in drills six inches apart; and transplant them, as soon as they can be handled, into the prepared soil. Cuttings may be put in under a hand-light shaded, any time early in

summer; or they may be put in pots in sandy soil, and placed in gentle heat, and planted out when struck. The scent of this shrub is agreeable, and is almost a certain cure for nervous headache. I am not troubled much with this distressing complaint; but I was once taken with it very severely. I was then living alone in a garden. I got out of bed and crawled to a Rosemary bush, and gathered a handful of branches. On them I poured a quantity of boiling water, and inhaled the steam for half an hour, and drinking occasionally a table-spoonful of the infusion. I was glad to find the distressing throbbing pain gradually ceased, and in two hours I was quite well. I can confidently recommend this simple remedy to any one so afflicted.

The flowers and calyces are used as the chief ingredients in distilling the famous Hungary water; and the leaves in infusions add to the flavour of tea for febrile complaints. It is the herb of remembrance. I have often attended funerals in Yorkshire, where sprigs of Rosemary have been cast upon the coffin.

VANILLA PLANIFOLIA.—This is an orchidaceous plant growing on trees in the West Indies. In our stoves it climbs up a back wall like Ivy. The scent is obtained from the long pods that succeed the flowers. These are gathered just when they are open, placed under a still, and the perfume is thus extracted. The pods are also dried and powdered, and the powder is highly scented and as highly esteemed. It has fruited in several places in this country, particularly at Sien House, and at the Fenco near Macclesfield, and also at Chatsworth. The pods produced at these places were quite as highly perfumed as any imported from the West Indies.

I have no doubt many other fragrant herbs might be made use of for their perfume; and as variety is desirable, distillers of such things should try experiments with others—such, for instance, as Lemon Thyme. A hint, however, is enough for these gentry: the public will pay liberally for any new pleasant perfume.—T. APPLEBY.

(To be continued.)

THE SCIENCE OF GARDENING.

(Continued from page 210.)

The following table shows some of the constituents of common stable manure that are constituents also of our usual crops:—

Stable manure.		
Carbon	} These are the chief components of all plants.	
Hydrogen		
Oxygen		
Nitrogen	} In some vegetables.	
Carbonate of lime		In almost all plants.
Muriate of potash	} In Cucumbers, Garlic, &c.	
Muriate of Soda		Perhaps in all.
Sulphate of potash	} In Cucumbers, Garlic, &c.	
Magnesia		In all corn and many other plants.
Phosphate of lime	} Potatoes, Onions, and most other crops.	
Oxide of iron		In most plants.
Alumina	} In most plants.	
Silica		

Stable manure, and for the same reason every other manure composed of animal or vegetable remains, is evidently valuable to plants, by affording them such matters as they are composed of. But this is not the only reason that manures are beneficial; for in that case mere decayed parts of their own species should be the most fertilising applications. There is no doubt that plants are essentially benefited by such applications; but why do Potatoes, for example, grow more luxuriantly on ground manured by sprats than on ground manured with the dung of horses, and still more superior to the same crop grown on a plot manured with the decayed parts of its own species? Apparently, but only partly, because the manures mentioned decompose with a rapidity exactly proportioned to the order of benefit. Sprats decompose, and their parts become soluble and capable of use by the plants, first and most rapidly; then the dung of animals; lastly, the vegetable remains. All the less solid animal matters decompose with greater rapidity than vegetable matters: hence the dung of such animals as are carnivorous is the most prompt in benefiting vegetation. Witness night soil, pigs' dung, &c.; but such manures are not the most permanent. Hassenratz manured two portions of the same soil, No. 1, with a mixture of dung and straw highly putrefied; No. 2, with a similar mixture, newly made. He

observed, that during the first year the plants in No. 1 produced the best crop; but the second and third years (no more dung being added), No. 2 produced the best crop; after which, both seemed alike exhausted.—(*Ann. de Chimie*, xiv. 57.) The same chemist found that a soil manured with wood-shavings did not, during the two succeeding years, produce a superior vegetation to the same soil without any manure; the third year, however, it was better, but it was not until the fifth year that it reached the maximum of fertility. The site of a wood-stack, and the newly cleared lands of America are eminently fertile, from the gradually decomposing vegetable remains they contain.

These facts and observations teach us that the most prompt manures are the reverse of economical. Vegetable remains, incorporated with a soil, will ensure an average produce during several years; animal matters and dungs highly putrescent are powerfully but transiently beneficial. Putrefaction is evidently the means of rendering these substances available to plants: hence, thoroughly decayed stable manure is usually employed by gardeners, as being of immediate benefit, admitting of clean husbandry; and because economy is not, in private establishments, the generally presiding genius of the gardens. If stable dung or other manure be allowed to putrefy in an unenclosed heap, the loss is immense; all the gases which pass off during decomposition, all the soluble matters which drain away, are highly nutritious to plants, as has been proved by Davy and others. If the decomposition be thus allowed to proceed until the heap becomes a soap-like mass, the loss cannot be less than fifty per cent. Notwithstanding all the reasoning of chemists, however, putrefied dung will continue to be used; it admits of clean workmanship, with less labour, and ensures a good immediate crop: to prevent as much loss as possible, therefore, the dung-heap should be in a brick cistern, and covered over with earth at least nine inches deep, with a well at one corner to retain the drainage, which from time to time, should be returned over the heap.

The chief component of plants is carbon, and we shall not be far wrong if we estimate it as constituting 50 per cent. of every vegetable; it is the decayed organic remains of the soil which supply a considerable portion of this to the growing plants. It is a subject of debate amongst chemists how the carbon of manures is imbibed by plants. Carbon, say they, is insoluble, and experiment has demonstrated that the roots cannot absorb it in a solid state. Senneber, having observed that water impregnated with carbonic acid, when applied to the roots of plants, was beneficial, concluded that the carbon of manures is converted into carbonic acid, and is in that state imbibed by them.—(*Phys. Vég.*, v. iii., p. 55.)

We consider that the facts of which we are in possession, if progressively estimated, place the subject in a very clear light. Saussure found that a soil deprived of its soluble matters, by repeated boiling in water, would not support vegetation so well as that portion of the same soil not so deprived of its soluble constituents (*Recherch. sur la Vég.*, cv., sect. 11., p. 170.) The extract thus obtained was evidently composed of saccharine matter, mucilage, extractive principle, &c. These we know are nutritive to plants, and are elaborated and assimilated by them after being absorbed by their roots. Now, vegetable substances, as straw, &c., gradually yield these soluble matters as they decay. Straw, wood, leaves, &c., consist chiefly of woody fibre; to convert this into saccharine and mucilaginous matters is the work of putrefaction; to effect this, oxygen must be absorbed, and the extra proportions of carbon be got rid of, as is evident from the following table of constituents:—

	Woody Fibre.	Gum.	Sugar.
Carbon . . .	52.53	42.23	27.5
Oxygen . . .	41.78	50.84	64.7
Hydrogen . .	5.69	6.93	7.8
	100.00	100.00	100.0

That such processes actually do occur Saussure has demonstrated by experiment: he found that moist wood, exposed to the air absorbed oxygen, evolved carbonic acid, and water was evidently decomposed. Thus, then, putrefaction seems to render organic matters fit for the nourishment of plants by converting them into saccharine and mucilaginous compounds, capable of solution in water. Hence the phenomenon of wood, which is slow of decomposition, being a permanent manure; animal matters which rapidly putrefy, being transient, though temporarily powerful: hence the economy of using partially decomposed composts is also explained; when completely decomposed, their soluble matters, being more than can be consumed at the time by the

crop, pass away with the drainage water, much is lost in the state of gas, and all that is left are a few earthy, saline, and carbonaceous particles of comparatively little value.—J.

(To be continued.)

FERTILE AND BARREN STRAWBERRY PLANTS.

"All agree in the conclusion that there are fruit-producing and barren Strawberry plants, and the general advice is, to get rid of these latter as soon as they are detected; but to the best of my recollection, and I have referred to all the numbers of your valuable journal which I have in my possession for the past two years, there is no method shown by which this can be done, except that the plants do not flower. Now, from the fact of my having planted runners from *British Queen* in September, 1857, that did not flower in 1858, but sent out runners in abundance, which got firm hold, and in 1859 are bearing most abundantly, whilst the old plants, with very few exceptions, have not flowered at all, I am at some loss to understand how this applies. The young plants of 1858 were all first runners carefully pegged down. The questions that naturally suggest themselves are—Firstly, Is the first runner invariably a productive plant, and the second one a barren plant? And, secondly, Does it matter whether the parent plant of the runner is a productive or a barren plant? Would you recommend me to destroy every plant that has not flowered this year?"—A SUBSCRIBER.

[The questions involved in "A SUBSCRIBER'S" letter are of considerable importance. Did time at this busy season permit, I should like to enter upon the subject more fully; but, in the meantime, must pass it over with some of the results of my practical observation, hoping that others will lend a helping hand duly to ventilate the questions raised.]

Whether, as a general fact, there are fruit-producing and barren plants, depends greatly on the kinds. For instance, in the old *Hautbois* there are very apt to be a redundancy of plants with male blossoms only, and, consequently, those only having female blossoms bore fruit. Were there none but plants with female blossoms, Strawberries of good size could only be obtained by the pollen being carried from other Strawberries. In the prolific *Hautbois*, most of the plants are furnished with the female organs, or the incipient young fruit; but often there is a lack as respects quantity, and sometimes a total deficiency as respects stamens or male organs. In such cases as the last, even when the flowers were covered with thin muslin, so as to prevent bees, flies, and, to a certain extent, the wind, carrying the fertilising pollen, I have found the receptacle, which we call the Strawberry, sometimes swell to a fair size; but if the pollen from the stamens were rigorously excluded, the seeds, or the marks of seeds on the surface were imperfect, and, properly speaking, had no kernel or heart in them, and, consequently, would not grow if sown, treat them how you would. So far the prolific *Hautbois* unfertilised resembled a Cucumber unfertilised, the Cucumber for the table being all the crisper and more beautiful in shape if it escaped the fertilising process.

Our correspondent's letter, however, has more of a reference to plants that never flower than to those producing imperfect blossoms. The producing imperfect blossoms is what I have noticed in all Strawberries at times, as well as in the *Hautbois*. Hence, in forcing, I have frequently had to dust the flowers of one plant with another, the former being deficient in pollen dust. With respect to some of the old Chilian Strawberries, and also such late kinds as *Elton* and *Eleanor*, I have often observed what our correspondent alludes to—plants growing strongly, showing no bloom-trusses at all, making runners freely, and these runners when planted having a strong tendency to possess the infirmities, as to fruiting, of their parent. A second season, however, should transpire before such plants are pulled up, or marked, so that runners should not be taken from them; as, though they do not show the first season, they often throw up a splendid mass of flower-stalks in the second. Prudence, however, would say, Select runners only, if possible, from fruitful plants. Even from these that showed no flower-stem for two years I have had runners that showed fruit the first year; but the many cases in which they resembled their parents showed the undesirability of such a practice as general routine.

Earlier kinds, such as *Black Prince*, *Keens' Seedling*, and *British Queen*, are less liable to this destitution of flowers. In

general these will show bloom the first season after planting; but, of course, if the plants are small, the bloom-truss will also be small. Some, in such cases, have complained that their plants did not bloom and fruit, when, in fact, the remains of the bloom-stalk were to be found, but never came to anything, because the plants at that critical time were checked by excessive heat and drought. Such plants, if not much injured, bloom well the second season. Though even here prudence should be exercised in not choosing runners from defective plants, yet there is less danger of perpetuating sterility than in the later kinds first alluded to. Like our correspondent, I have had very fertile runners from plants that had little or no bloom. It is seldom, however, that in such kinds I have noticed the sterility extending over a second or third year. In his case, where the young plants were fruitful, and the old plants nearly as sterile as at first, I should almost incline to think, in the case of *Queens*, that the plants had been kept growing too long in autumn, or had been injured by frost and wet in winter; and the older such plants are, they are the more subject to such troubles. I recollect an instance of vigorous, strong plants receiving a heavy watering of rich warm manure water that passed through a heap of hot dung in the beginning of October, and the plants kept healthy and green the whole winter, but showed little and defective blossoms. In another case, a friend complained that his Strawberries were barren again, when on examining the buds we found that the rudiments of the flower were black, and perished by wet and frost. Getting active growth arrested in autumn, and the buds well matured, are great essentials to success. Nevertheless, where time for noticing and marking all such things can be given, I would, in answer to one question say,—that in all cases I should prefer selecting runners from fruitful, rather than from unfruitful plants; though in the case of these early ones referred to, I never found the advantage so marked and decided as in the later kinds. In fact, in these early kinds I seldom see any deficiency in fertility the second season, if the plants received due attention.

To the other question, "Is the first runner invariably a productive plant, and the second a barren?" I would say that no such law is general. Nay, that though the fertile plants of our correspondent were the first plants in the runner, showing that, in general, the matter is not of first moment, yet the result of carefully-conducted experiment years ago would lead me in choosing plants to reject the first, or the runner, and lay the second and third. After these latter were rooting, the first plant, or the runner, could be split off with a knife without hurting the runner or destroying the connection between the other young plants and the main stool, until the young plants were able to provide for themselves. I have tried the experiment with *Keens'* especially in two ways—namely, three rows in a forcing-pit, the first row of the first plants, or the runners, the second ditto with the second, and the third ditto with the third, and three rows in the same manner out of doors. The first plants, or the runners, maintained their superiority all along for luxuriance and fine growth; but the second especially, and even the third, were the best for massive, abundant bloom. I expect I get them pretty well mixed, and have no reason to complain; but were I able to bring experience and nicety to bear on these things, as amateurs can do, I should certainly prefer the second plant, or the runner. If others, on trial, should confirm this view, it will merely be another evidence that the extreme of luxuriance and the extreme of fertility do not often meet together.—R. FISH.]

GOLDEN HAMBURGH GRAPE.

WE are glad to find that this admirable Grape, of which we gave a figure and description at page 403 of Vol. XIV., still maintains the high character we originally formed of it. Numerous reports have been in circulation tending to depreciate it in public estimation; but from what we saw recently at the Meeting of the Fruit Committee of the Horticultural Society tends fully to remove any such misconception, and to confirm us in the opinion we formerly expressed.

At this Meeting Mr. James Veitch, of the Exotic Nursery, Chelsea, offered a premium of FIVE GUINEAS for the best three bunches, for which there were three competitors—Mr. Tasker, of Brighton; Mr. Allport, of Doddington Park, Nantwich; and Mr. Crambe, of Tortworth Park. Mr. Tasker's were large and handsome bunches, eight to nine inches long and heavily shouldered; the berries very large and oval, and of a greenish-yellow colour. Mr. Crambe's were very large, being a foot long

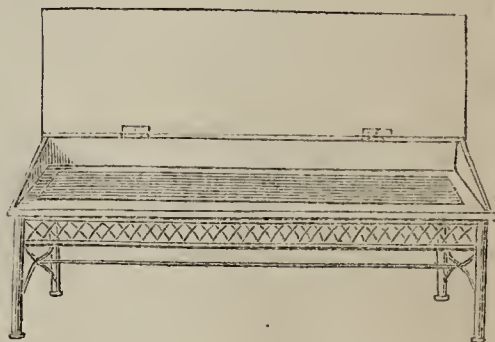
and seven inches across the shoulders, but looser than Mr. Tasker's; the berries large, and pale green, but with rather more flavour than Mr. Tasker's. Both of these exhibitions were not sufficiently ripened. Mr. Allport's were smaller bunches than either of the others; the berries of good size, and more approaching the amber colour of the variety when properly ripened; they were also rich in flavour. After making a careful comparison of the merits of the various exhibitions, the Committee unanimously decided on awarding the premium to Mr. Tasker.

NOTES FROM PARIS.

ONE of the most interesting accompaniments of a horticultural exhibition here is unquestionably the miscellaneous department, which includes all sorts of implements, machines, ornaments, fountains, models of greenhouses, and, in short, every contrivance suited to the garden either for utility or ornament. M. Borel, of the Quai de l'Ecole, is one of the principal exhibitors of implements, comprising a great variety of cutting tools, several forms of watering cans, fumigating bellows, vases in zinc and cast iron, and light garden-seats very tastefully constructed. The chairs especially are remarkable for elegance and strength. The larger seats have their supports formed in imitation of branches with twigs and leaves, which are carefully painted to look like Nature. I once sent you a sketch of a French watering-can—at least one of the forms in general use; but there are two others which are equally common. It is somewhat singular that the form so common in England has only been introduced here of late, and it is as yet very rare. This little fact, among others of more importance, shows the decided difference of constructive genius between the English and the French.

M. Roy, of the Rue Miromicri, has some magnificent iron gates and railings for entrances.

One of the most singular contrivances, and perhaps one of the newest, is shown by M. Caspar, of the Faubourg St. Martin; who has had the idea of constructing all sorts of garden ornaments entirely of *cane*s. His collection is composed of tables, chairs, flower-stands, flower-baskets, vases, &c., all of which are constructed with great skill and neatness. But M. Caspar has carried his ideas much further than the range of common garden ornaments. He has even succeeded in the most satisfactory manner in working some large chandeliers and picture-frames, which are astonishing proofs of what perseverance can accomplish. The trellises for balconies and window-gardens are the neatest I have seen; and in all these objects nothing but common cane is employed.



M. Barbeau, of the Quai de la Megisserie, has this new form of garden-seat, which admits of being effectively covered in bad weather. It has some resemblance to a long, low, writing-desk when closed; the lid, or cover, opening upwards, and forming a back. By this contrivance the seat may be always kept perfectly dry, even in winter.

Perhaps the most useful of all the contrivances in this Exhibition are the *paillassons*, or straw coverings, invented by M. Guyot, and shown by M. Latour, of the extensive works at Clichy near Paris. These *paillassons* are by far the neatest and surest coverings for frames and greenhouses which I have seen anywhere, and they have only been introduced within the last three years. They may be used for any object or structure which requires to be covered, either in the garden or field. They are always clean and free from litter; and, indeed, they may be employed with the

greatest advantage and rapidity in the formation of temporary houses and sheds for cattle. A neat structure, with doors and windows all in straw, forms part of this collection; and it has been purchased by Her Royal Highness the Princess Clotilde.

M. Leerosnier, of the Rue de Rivoli, exhibits samples of a light transparent canvass, suitable for covering fruit trees subject to the attacks of birds, and of which bags may be readily made for the special protection of Grapes. Several vines in pots, with the bunches of Grapes enveloped in the bags, are shown to illustrate their use more clearly. These bags are sold at from twelve francs to eighteen francs a hundred.

MM. Beniot, of the Rue de Rivoli, have a large collection of preserved vegetables, which are warranted to keep in any climate, and to be fit for use several years. The discovery of the art of preserving vegetables is one of the most useful of our day; and many people would be astonished to find that a packet of such vegetables, though kept in a dry state for two or three years, should appear when cooked as fresh as if only brought from the day's market.

M. Victor Lachesnaye, of Rueil, has invented what he denominates a portable fruit-room, capable of containing from two hundred to five hundred fruits. This invention consists of a series of boxes fitting on to one another, and so as to exclude the air. It has been favourably noticed by the Society, and is sold at twelve francs.

Talk to the French people about Rhubarb, and they screw their mouths, and twist their noses, as delicate young ladies might do while passing near the Thames in the hottest days of July. In the French pharmacopoeia the root of Rhubarb is mentioned as a strong purgative, and hence the aversion for one of the most wholesome of vegetable productions. Within the last three or four years, however, the real merits of the Rhubarb, as used in England, have been frequently brought before the notice of the public. The result has been that Rhubarb is now beginning to make way, and it may be met with here and there under different forms and colours more or less inviting; but as yet it is mostly confined to the confectioners' shops, where it is sold as an expensive sweetmeat or preserve. One of the largest dealers in this way is M. Nivet, of the Rue Buei, who makes the following statement in his circular:—

"The stalk of Rhubarb, though never used in France as an article of food, has long been employed in England; where it is considered not only very pleasant, but even as of undoubted utility in the preservation of the health. The great consumption of this vegetable in England, and the opinion of several eminent medical authorities, have led us to believe that such a useful substance might with advantage be introduced into France; and we have succeeded in preparing the stalk of Rhubarb in its fresh state under the form of confiture, or preserve. The stalks may also be had entire, prepared either as a preserve, or in sugar as *glacés*. Under these various modes of preparation the stalk of Rhubarb is not purgative, as might, perhaps, be supposed. It is thus gently aperative, sedative, and especially very cooling. It is thus particularly suited to women and children; and, in general, to all who are predisposed to irritation or inflammation, owing to the want of open-air exercise, or to a sedentary occupation. Add to these recommendations that it is prepared in the most inviting form, and its delicious taste can only be compared to that of the Apricot, the Plum, and the Apple. It may be used in the same way and as freely as other sweetmeats, and it may even be taken to excess without injury."

Rhubarb prepared by M. Nivet as a preserve is sold in pots at about 1s. 3d. each. In a dry form—that is, prepared in sugar, called here *glacés*, it is sold by the ounce or pound. The dealers in sweetmeats here have a rare skill in preparing fruits and vegetables in sugar, so as to keep for a long time. Large and small—even Melons and Carniflowers are made to assume the most tantalising aspect. If Rhubarb is to be among the number, it is certain, in the course of time, to be a favourite; but it may be a long time before it is grown near Paris on the same large scale as it is round London.

In the way of ornament, especially for evening, I may just mention the beautiful illuminated glass fruits and flowers which have been introduced within the last two years by M. Barnet. This invention is likely to receive an extensive application in Paris, where so much is done with ornament both in the drawing-room and in the conservatory. The excellent wood carvings by M. Viardot also claim a passing notice. The subjects are chiefly of a pleasing rustic character; and such ornaments might have a place in the richest boudoir. Some of the groups of foliage,

flowers, fruit, and birds evince the greatest skill and the most delicate finish. The art of carving in wood occupies a great many people here, and some of the artists have attained great excellence; but in this, and every other department, there are as skilful artists in England: in number, however, the difference is in favour of the French, at least in wood and ivory carving.

Such are a few of the collections and objects in this department of the Exhibition, which, in extent and composition, has all the appearance of a fair or bazaar.—K.

QUERIES AND ANSWERS.

SHIFTING AND STOPPING VINES IN POTS.

"I have two dozen Vines in pots. This being the second season for them from the eye, I should like to fruit them next season. They are at present in No. 4-pots. I intend to shift them into No. 1-pots. Should I shift them just now, or wait until next spring? The Vines are seven feet long. I have pinched the laterals. When should I pinch the leading shoots?"

"If you recommend the Vines to be potted in early spring next year, should the old soil be shaken from the root when potting them?"—AN AMATEUR.

[Your two questions are important ones. Before we answer them, however, allow us to say, that if Vines in pots were to be fruited the third year only, we should soon hear less about the advantage and interest of that mode of fruiting them. Be it recollected that if you should take a heavy crop from them next season, the plants will be of little value afterwards. If a few bunches are taken, the Vines, by rich top dressing and manure waterings, may continue to bear again and again. A good crop in a pot is the chief essential in most people's estimation; and that acquired and obtained, what may become of the plant is of little importance. This should not be lost sight of by the advocates and practisers of this mode of cultivation.

Now first, as to *stopping*. We should have liked, if you had told us, the strength in thickness of your Vine shoots, and how you pinched the laterals—that is the first consideration. The main shoot must not be robbed by contending claimants; therefore the laterals should have their points pinched out, so as not to interfere with the main stem. The more side-shoots there are on that stem fully exposed to light, on the other hand, especially in the first part of the season, the stouter and stronger will the stem be. Therefore, instead of removing these laterals, we advocate pinching them back, so as to leave on each a good leaf, or two, or more. We do this on the principle of the reciprocal action that must ever go on between roots and branches; and, consequently, that in the growing period, provided due prominence is given to the main shoot, these laterals return more to the stem than they abstract from it. When in autumn we wish thoroughly to ripen the wood made, and mere growth is a matter of little or no consideration, we gradually remove these laterals altogether, taking a few away at a time—first, that the sun and air may have more play on the main leaves and wood; and secondly, because the small leaves made by pinched laterals after that time are to be looked upon more in the light of robbers than providers. If you begin to grow your Vines in January, we should advise beginning to curtail the number of laterals before the end of July, if you mean to force early. If you commenced in March, the end of August or beginning of September would be soon enough.

A similar principle will apply to the stopping of the main shoot in connection with the length at which you mean to leave it for fruiting. When we used to start Vines in pots early, we did not mind stopping the main shoot once or twice; and thus, by attending to the above process with laterals, we made sure that the part of the Vine next the pot was the strongest and the best ripened. If your shoots are only seven feet, and have not been stopped at all, we should conclude that you started them late. By stopping now, you could hardly expect the bud that broke and formed a fresh shoot to be well ripened this season. But if you consider that a rod of six or seven feet would be as long as you require for fruiting next year, then we should advise picking out the point of the shoot at once, in order to throw more strength into the shoot downwards, and get it earlier and better hardened or ripened. The former must be done by allowing the laterals, though shortened, to remain, treating the fresh leader as a large lateral, and nipping out its point when it made half-a-dozen or so of joints. The latter must be accomplished by

shortening in and removing the laterals entirely, but by degrees, as the wood begins to harden. For want of attention to these simple principles we have seen Vines in pots, intended to be cut back in winter to six feet, or even shorter, allowed to ramble as they pleased—the lower part of the stem without a lateral, and weak and puny; the upper part green and luxuriant, and of double the thickness, with laterals flaunting at will: and surprise was expressed that the Vines did so little good, when all the strongest and best wood, if it had been well hardened, was taken away with the pruning-knife. Common sense, under such circumstances, would say, “Concentrate your strength near home at the pot end of the Vine shoot.”

The second inquiry, as to time of potting, we answer by saying, repot directly if you mean to do it at all. For Vines to be started at all early,—the middle and end of July are rather late for repotting,—we should have preferred the beginning of June. The chief things to be thought of in the autumn months are, concentrating vigour and ripening the wood, so as to have buds plump and hard. The late potting will encourage fresh growth at the very time you wish to arrest it. Besides, a No. 4-pot is large enough for pot Vines under ordinary circumstances. Were the Vines ours, and the middle of July passed, we would be more inclined to give surface dressings and manure waterings than more pot room. We should hesitate to repot now; there would be no hesitation at all about the matter in the spring of the year. Such an operation we should thoroughly avoid then. Of course, we are presuming that the Vines, when last shifted, were properly drained and placed in a suitable, rough, open, rich compost. The richness is of less moment, as that can be supplied at any time by watering and top dressing. When plants are in exhausted stuff, and the drainage imperfect, there can be no question as to repotting at any time, even on the principle of securing health. For all plants intended to fruit in pots, the more thoroughly the pots are filled with roots, before fresh growth is excited, the more likely will be the success. This rule holds true, especially in all early forcing. When plants are allowed to start almost naturally, the late repotting is less injurious—in fact, many things hardly feel it. We have taken four Vines, as equal as possible in No. 12-pots, and started them in the beginning of February under the same conditions. Two pots had the surface soil removed without injuring the roots, and fresh rich compost added; the other two had a little of the old soil also removed, and were transferred, one to an eight, and one to a four-inch pot; and though the latter produced during the season finer foliage, they neither showed, set, nor perfected their fruit, equal to those in the No. 12-pots. Of course, the latter required more supervision in watering. If our correspondent would select six 32-pots of *Keens' Seedling Strawberry*, as near as possible in growth and ripeness, and all having their pots well filled with roots in October, and place three of these as they are with a fresh top dressing in his forcing house, in January, and place the other three in the same place and circumstances, only after having transferred them into a 24-pot, or a small 16-pot, and into suitable compost; and then, if after giving them respectively all necessary attention, he find that the shifted plants yield the best return, then his experience will have been so different from our own, that we should gladly forfeit this good steel pen, and consider he was perfectly justified in opposition to our advice, in repotting his fruiting-Vines in the spring.]

CULTURE OF LAPAGERIA ROSEA—LILIES AND YELLOW ROSES.

“At page 227 of Vol. XVI. of *THE COTTAGE GARDENER* I referred to a small *Lapageria rosea*, and said that in the following autumn I would state how I proceeded with it; but I desisted, because it did not move, became of a dull green colour, and by the following midsummer it was dead. In the same autumn (1857) I procured another plant which had started about six inches, and put it in the same pan as the other, and placed it in a cold pit; but I found that some insect had eaten it off within two inches of the collar. In the spring of 1858 it made two or three leaves close to the collar; and in May I placed it in the open air, and two shoots started, and made about eighteen inches, and twined round two rods. As I found they would twine, I put some finely perforated zinc about two feet deep round the inside of the edge of the pan, and covered it with lace, and thus protected it from insects, &c. In October I placed it in the pit again with other plants, and took it out soon after the late frost. In February, and several times afterwards, I gave it some water.

It began to grow early in the spring, and it has grown twelve inches this year; so that it is now two feet and a half high.

“My scheme for growing the *Lapageria* was this:—I could not obtain a pan exactly what I wanted; but I procured one five inches deep, twenty inches diameter at top, and fourteen at bottom, with a hole two inches diameter. Some bits of slate are laid on the bottom, and covered with a piece of zinc full of quarter-inch holes; then a peaty turf, the grass side upwards, and filled up with a compost of peat, loam, sand, and small gravel. In this the plant is growing, and is supplied with water thus:—The pan fits just within the top of a lower one, into which the water is poured. A bit of wood, the size of a pencil, is forced through a small bit of sponge three inches long, and enters the turf which the sponge touches and supplies with the water below. It will take up gallons in the year, and in this way moisture is given [by “filtration.”] Last month I took the compost out of the pan to see if any worms were in; and found that the root of the plant had not extended laterally, but had gone directly downwards and forced its way through the solid turf (one inch and a half thick) near the point it is supplied with water. Will this statement afford any hint to Mr. Beaton? and will he be good enough to give me any in regard to the management of the plant, and the height it is likely to attain, and when flower?

“In the autumn of 1857 I had a *Lilium giganteum*, which was planted out in the spring of 1858. It threw up two leaves four or five inches, and when the warm weather came in June it stopped growing. In the autumn I put it in a cold pit, and planted it out this spring. It has made two leaves about as large as before, but stronger, and now seems stationary. Can I help it on? I suppose I ought to be content.

“At the same time I had a *Lilium Wallichii*. It has only grown a few inches each season, but has made several offsets. The Lilies have been treated as directed at page 227 above referred to.

“I have had a *Rosa Fortuniana* three years. It was planted two years since against the front of my house; the aspect north east, nearly east. So far as there is any peculiarity in the situation, it is rather dry; but the plant is about twelve feet high, and looks healthy. Last year it had two or three flowers on, but this year not a bud. It has been pruned somewhat in the way of a *Banksia*, but not strictly so.”—J. G.

[*Fortune's Yellow Rose*, and all the shy-blooming *Roses*, as *Cloth of Gold* and *Isabella Grey*, ought to be treated exactly as they used to be two hundred years back—no pruning, or pinching, or touching with a knife, if it were for ten years, till they come to a flowering age. Then, and not till then, clean right out of them all the very small wood, and every inch of the very strong shoots made the summer before. (See page 223.) Here is the first instance in our pages of watering by “filtration,” and another fact in corroboration of the thirsty nature of *Lapageria rosea*. The roots struck downwards after the filtration, contrary to their nature. The pans ought to have been reversed—the one holding the water to stand by the side of the plant-pan, and a little higher, so that all the water could be drawn off by capillary attraction, or, by a much better name, by “filtration,” as it used to be in the olden time. A good, healthy, vigorous *Lapageria* would manage very well to have the largest-sized garden water-pot full of water by the side of it from May to September, and a constant “filtration” going on all the time, night and day, as Gilbert said. A gallon of water every five or six hours during that period would not be too much for such a plant; but one gallon a-day would be quite enough for a young plant such as that above. A strong plant of *Lapageria*, in a free, rich, and very damp border, will grow ten or twelve feet at one start, and bloom at the end of the autumn.]

NIGHTINGALES IN CAGES.

“I have this spring reared by hand a nest of nightingales—splendid fellows, warbling, when covered up for the night, already. I wish to learn what are the points of size or feather which are peculiar to the male bird; or is the song common to the male and female? Mine are very much alike in all respects; but as they sing in their little way, when covered for the night, I am unable to judge; as, if I were to uncover them, the disturbance would check their warbling, which is really not to be despised in creatures so young.”—PHILOMEL.

[I know of no peculiar characteristic by which you can distinguish the male from the female in the nightingale, except by

dissection; for the shape, carriage, and plumage of both are similar. They both sing; but the song of the cock is stouter than the hen's, and he has a greater variety of notes. The "water-bubble" has deeper intonations, and the "wood-rattle" is more sprightly and continued longer. Excepting which, I could never discover any difference in their warblings. Yours are nestlings, and, I fear, they will never acquire the ravishing tones that are delivered from the throat of a bird in a state of nature. Your greatest difficulty will be to preserve them in the month of September, when they are about to migrate, for they will become restless at night, and knock themselves about in the cage, wishing to obtain their liberty. A mealworm occasionally will be very beneficial to them at that period.—WM. BRENT.]

ADMISSION TO THE NATIONAL ROSE SHOW.

I do not know if you are any way connected with the subject, but as I have no one else to apply to, may I ask why the tickets at the late National Rose Show were so outrageously expensive? I am an ardent lover of the Rose, and a tolerably successful amateur; but, like many amateurs, not blessed with a long purse. I was attracted by the fame of the Exhibition; but I could not afford a 5s. ticket, and so was obliged to wait till four o'clock, when the Roses, poor things, had been suffering from the heat in a stifling atmosphere of a London room for a long summer's day. Then there was such a crowd that it was impossible to see the Roses; and I will venture to say, that hundreds of those who paid 1s. (myself included), would have had no objection to pay 2s. 6d. for admission at a reasonable hour. It appeared to me as if the Show were intended for none but those who came in fine carriages, with powdered flunkies carrying big sticks! in which case it is folly to call it a National Rose Show. How Mr. Beaton managed to report anything I cannot imagine. I hope that matters will be better managed another year, and that you will put forth a word on behalf of those whose taste outstrips their purses.—ROSE.

DAVID TOWNSEND.

WHEN a veteran in the cause of human improvement passes away, it well becomes the aged to bear testimony to his worth, and the young to profit by his example. When the wise and good devote a long life to the generous aims and elevating pursuits of the community in which they move, their career leaves a bright page in the history of our race. Of such was the lamented friend whose mortal remains we have recently followed to the tomb,—whose memory we all fondly and gratefully cherish.

David Townsend, son of Samuel and Priscilla Townsend, was born in the village of Pughtown, Chester County, Pennsylvania, on the 13th December, 1787.

He was brought up to the business of agriculture on his father's farm, and received a plain English education, including some elementary mathematical instruction, at the country school of the vicinage. Possessed of an intelligent and active mind, and being, withal, an excellent penman, he was appointed in 1810 a clerk in the office of the Registrar and Recorder of Chester County, which appointment led him to reside in the borough of West Chester, where he continued (with the exception of a year on the paternal farm) during the remainder of his life.

On the establishment of the Bank of Chester County in 1814, David Townsend was chosen one of the Directors, and served from November of that year until November, 1816.

He received the appointment of cashier on 1st of October, 1819; and the bank continued under the sagacious management of the new cashier for nearly the third of a century, with unparalleled success. His resignation, in 1849, was induced by an accidental injury to the brain, which finally disabled him, and caused his death.

In all his varied pursuits, David Townsend was eminently a practical man,—ingeniously and successfully adapting the requisite means to the end proposed. To unite the useful with the agreeable was his constant aim.

David Townsend was one of the founders of the Chester County Cabinet of Natural Science in the spring of 1826; was the faithful Secretary and Treasurer of that interesting institution from its origin until the failure of his health; and was at all times one of the most active, public-spirited, and valuable

contributors,—whether to the Treasury, the Museum, or the Library. About the time the Cabinet was organised, a taste for natural history was decidedly manifested by several of the members, among whom Mr. Townsend was ever prominent. He soon, however, had his attention directed to botanical studies, and was ever after distinguished for his devotion to "the amiable science." The discriminating eye, and habits of close observation, so important in a bank officer, were equally available to the botanist, and quite germane to the investigations of genera and species. The plants of Chester County and the surrounding districts became familiar acquaintances, and were duly arranged in his herbarium. His aptitude and painstaking skill in preparing specimens were very remarkable, and led to a delightful correspondence with those eminent botanists, Dr. F. Boott, of London, and Sir William J. Hooker, formerly of Glasgow, Scotland, now Director of the Royal Gardens at Kew. The last-named gentleman, writing from Glasgow (while Professor of Botany there) to a friend in West Chester in March, 1833, says:—"I thank you a thousand times for introducing me to the correspondence of David Townsend. His copious and beautiful specimens have delighted me." Sir William, whose contributions flowed in on him from every region of the globe, subsequently declared, that the handsomest specimens he ever received were prepared and sent by David Townsend, of West Chester, and Professor Short, of Kentucky.

In the latter end of 1833, a genus of plants, allied to the *Aster*, was named *Townsendia*, in compliment to David Townsend (who had done much to elucidate the characters of that family). The genus was established and published by Sir William Hooker, with a figure, in his splendid work, the "Flora of British North America,"—to the description of which he subjoined the remark, that Mr. Townsend, having imbibed an ardent love of botany, had devoted his leisure hours to the science with eminent success. "The plant," adds Sir William, "is peculiarly worthy of bearing his name, because he has studied and ably discriminated the numerous Pennsylvanian species of the allied genus *Aster*." The *Townsendia* was first collected on the banks of the Saskatchewan, in latitude 53° North, by Dr. Richardson, the intrepid and hardy botanist who accompanied poor Sir John Franklin in one of his hyperborean expeditions.

Five species of the *Townsendia* are now known, and described in Torrey and Gray's "North American Flora." They are all found along the streams which rise on the eastern slope of the Rocky Mountains; and while those alpine beauties shall continue to grow they will attest the merits of our Chester County botanist, and be perpetually associated with his honoured name.

When the cashier's feeble health compelled his resignation, the Directors of the Bank proclaimed their appreciation of his long and faithful services by presenting to him a pair of Silver Pitchers, with an appropriate inscription; and around that inscription was the delicate and significant accompaniment of engraved representations of the *Townsendia*.—(*American Gardener's Monthly*.)

ALPINE HUSBANDRY.—The characteristic feature of alpine farming is, that the preparation of fodder is the chief object, and the cultivation of grain only secondary. In the less elevated regions bordering on the flat country, it is the practice to break up the grass from time to time, and take a succession of grain crops. In more elevated districts, the moisture of the climate and the shortness of the season of vegetation prevent crops requiring tillage from coming to perfection, and there the whole attention is devoted to pasturage and the preparation of meadow-hay. The top dressing of the plots devoted to hay-growing, with the solid and liquid manure of the cattle, the cutting and making of the hay, and transporting it to the farm-offices, occupy a great part of the labour of the population of the Alps. They turn to account for hay-making those shelves and crevices among the mountains which are inaccessible to cattle, and even goats; the herbage, which often grows luxuriantly in such situations, is cut, boned up in cloths or nets, and carried down difficult paths on the head, or is flung over the precipices. The grass-lands in the lower regions near the dwellings being mostly reserved for hay, the cattle are pastured in summer in those regions that lie too high or too remote to be inhabited in winter. These pastures consist of plateaus and slopes, which immediately on the disappearance of the snow become clothed with a rich carpet of herbage and flowers. Each separate locality, or pasture, is called an *Alp*. Some of these "alps" belong to individuals; others to

the commune or parish. The more rocky and steep places are pastured by sheep and goats. There are three zones or stages in the alpine pastures. The cattle are driven to the first and lowest stage about the end of May; about a month later, they ascend to the "middle Alps;" and by the end of July they reach the upper Alps. As the days shorten, they descend in the same gradual way, so that the whole "Alp-time" lasts about twenty weeks. The pastures are provided with huts for those who have charge of the cattle, who also convert the milk into cheese. Little butter is made. The departure for the "Alps" in spring, and the return in autumn, are made the occasions of popular festivals.—(*Chambers's Encyclopædia*.)

NEW OR RARE PLANTS.

THUNBERGIA COCCINEA (*Red-flowered Thunbergia*).

This beautiful and gigantic climber has been called, also, *T. pendula* and *Hexacentris coccinea*. It is a native of the jungles in all the hilly regions of tropical India. It has at length bloomed in the ample space of the Palm-house at Kew.—(*Bot. Mag.*, t. 5124.)

RHODODENDRON SHEPHERDII (*Mr. H. Shepherd's Rhododendron*).

Introduced by Mr. Nuttall from the mountains of Bhootan and Assam. It was named in honour of Mr. Shepherd, of the Liverpool Botanic Garden. Its flowers are deep crimson.—(*Ibid.*, t. 5125.)

CYMBIDIUM EBURNEUM (*Ivory-like Cymbidium*).

"This lovely and rare Orchid" is found at an elevation of 5—6000 feet in the Khasia mountains of East Bengal. Flowers ivory-white, blooming in April.—(*Ibid.*, t. 5126.)

CEANOTHUS VEITCHIANUS (*Mr. Veitch's Ceanothus*).

This "magnificent acquisition to our hardy shrubs" was sent from California by Mr. W. Lobb to the Messrs. Veitch. It surpasses even the other species—*floribundus*, *Lobbianus*, and *papillosus* "in the abundance of its bright mazarine-blue flowers."—(*Ibid.*, t. 5127.)

DATURA CHLORANTHA FLORE-PLENO (*Double yellow-flowered Thorn-apple*).

Sent from South Australia, where it produced "its sweet-scented flowers for seven or eight months;" "planted in the open borders in June it may be expected to bloom here during August, September, and October." Probably a native of Europe, but raised in Australia from imported seed.—(*Ibid.*, t. 5128.)

THE FECUNDATION OF TOADS' SPAWN.

I MENTIONED, in my last paper on toads, that it was very difficult to decide if they can live without air. I now proceed to speak of the fecundation of their spawn—another part of their history extremely obscure. In connection with it, however, I have to observe that it is only those that winter in ponds and ditches which deposit their spawn in spring some time before the toads on land appear. These, of course, do not spawn, at least in the same season, which shows that the same reptiles do not annually increase their species. However, to be convinced that toads enter the water in autumn, I have fished them up from the mud through broken ice full of spawn from which I have bred tadpoles; but I should observe that these were only from the forward eggs, which were dark and not unlike Onion seed, while the light or less matured ones were absorbed. These, and other observations made during several years, lead me to think that they meet soon after they take to the water—probably in autumn. In this their eggs may be like those of other reptiles—for instance, snakes and slow-worms. I have reared young ones from those of snakes at least two months after the snake had been captured. I have also had slow-worms in captivity, which produced their young alive about the same date. However, this view of the case as regards toads is, of course, opposed to the belief of their spawn being fecundated somewhat like that of fishes—after, or rather in the act of being deposited. A superficial observer of toads at that particular time might easily imagine this to be correct; but I suspect that the females are only assisted at that time by their partners in the operation of depositing. In favour of this I may note that lately I put some toads of both sexes into two

separate pails, which kept calling, and answering each other, and striving to get together. The females deposited their spawn with much difficulty; owing, probably, to the absence of that assistance which they receive in the ordinary process.

Perhaps these remarks may equally apply to frogs, except as regards the assistance of the males. I venture this, however, with some diffidence, for they are very shy at that time: in fact, it is almost impossible to get a sight of them, for they quickly descend to the bottom. But their manner of depositing spawn differs from that of toads. These lay it in two distinct rows like beads, about one yard in length; whilst that of frogs is more like a sponge. The gelatinous matter of both may have some analogy with the white of eggs; and not only serve to keep the dark eggs, or yolks, afloat to be hatched by the heat of the sun, but serve also as food for the freshly hatched tadpoles, at least for a few days. Their time of production varies according to the state of the weather; but even severe frost does not seem to affect the spawn.—J. WIGHTON.

TO MAKE APPLE JELLY.—Peel and core the Apples—Spitzenbergs are best; put them in a brass or porcelain kettle, with water sufficient to stew them without burning. When soft, press out the juice through a woollen cloth. To one quart of juice add one lemon, and boil ten minutes; then put in one quart of sugar, let it boil until it is thick enough (you can tell by cooling a little); then strain through the woollen cloth again, and it is done.—(*American Country Gentleman*.)

TO CORRESPONDENTS.

THE PRESENT VOLUME OF THE COTTAGE GARDENER (*A New Subscriber*).—It commenced the first week in April last.

AGAPANTHUS CULTURE (*Idem*).—This requires a large pot, strong rich loam, much water in summer, and to be out of doors from May to October. It will also live out of doors in Ireland and the south half of England, with the same protection of coal ashes as is given to Fuchsias; but the leaves perish, which does not hinder its blooming in the least.

TROPEOLUM ELEGANS (*Idem*).—It does not come true from seeds, and must be yearly propagated just like Verbenas. *T. Brilliant* will not make a bed; and the one you call *Pelargoniflora* we never saw or heard of. All our new subscribers, and a small fraction of the old ones, should bear in mind to name the part of the county or shire they write from when they ask about plants.

NEWFOUNDLAND.—*A Friend* wishes to know if there is a botanic garden in Newfoundland, or any well-known nurseryman there.

GARDEN VERMIN (*J. V. Morgan*).—Guano and gas ammoniacal liquor will drive ants from their haunts, and manure your neglected garden at the same time. Wireworms are not to be driven from a soil. Faring and burning six inches of the whole surface might rid you of them and many results of neglect. Have your old pits pointed and cemented; it will keep the woodlice from harbouring there.

SWEET WILLIAMS (*W. M. D.*).—They are the finest varieties we have ever seen.

STRAWBERRIES (*W. Jones*).—They will continue bearing for many years; but, for very fine berries, should be renewed every third year. *Kitley's Goliath* is the largest. If you buy "Florists' Flowers for the Many," you will, for fourpence, have full particulars relative to the culture of those you ask such general information about.

FORMING A GREENHOUSE OF FRAME-SASHES (*R—d*).—An answer to a case similar to yours was given at p. 182, and another a short time before. The whole of your plan, as to the construction of the house, we approve of. The pathway with a four feet and a half platform in front will be rather narrow, better give it six inches more. The space below the platform will be useful. Perhaps it would be better to have the platform, if a fixture, a foot lower. You could then elevate small pots, or a pot, or temporary shelves when required, and you would thus give more room for taller plants. There should also be openings in the platform between it and the front wall, or the circulation of air will not be complete. In the case of a flue for such a house, we would never think of brick on bed, for then almost all your heat must come from its top. Brick on bed is good when strong constant heat is wanted, not when sudden heats to repel sudden frosts are required. Neither do we approve of covering the top with slate, as, whenever the flue is hot, they will crack and fly to pieces. Better use tiles from one inch to one inch and a half in thickness.

ROSES SUITABLE FOR PILLAR ROSES (*An Amateur, Derby*).—1. *Rosa Ruga*. 2. *Jaune Desprey*. 3. *Lamarque*. 4. *Aimée Vibert*. 5. *Souvenir de Malmaison*. 6. *Eclair de Jupiter*. The present is the best time for striking cuttings of Roses. The dwarf plant you sent is the *Campanula pusilla*, variety *alba*, or the white dwarf Bellflower. The other appears to be (from the much-pressed bit sent), the double white variety of the *Campanula persicifolia*, of which there are several varieties.

GREENHOUSE BUILDING (*A Subscriber*).—The cost varies in different localities, and small structures cost more in proportion than large. The best way is to have an estimate from two or three builders. One so small might be well heated by gas, with due arrangements for carrying off the products of its burning. What do you mean by "Verbena blight?" If the white mildew on the leaves, flowers of sulphur are the best application.

EXPORTING WILD FLOWERS (*New Zealand*).—We cannot tell what seeds

you should gather for your friend in New Zealand, for we do not know his object. Grass seeds, tree seeds, or flower seeds?

OXYGEN IN AQUARIUM WATER.—"A Subscriber to The Cottage Gardener would be glad to know, why in a salt-water aquarium the air, which the sea-weeds give out, comes up to the top in bubbles, while in a fresh-water aquarium it appears to be absorbed in the water?" [Water always is capable of absorbing oxygen in proportion to its purity. The more saline the water, the less oxygen can it absorb.]

FERN SPORES (A Beginner).—We do not know of any one from whom you can purchase these.

NAMES OF PLANTS (J. P., Boroughbridge).—The plant, from which you have sent us leaves and bits of shoots, is the Mock Orange, or the Cucumber tree, as the people call it in Wiltshire, on account of its leaves smelling something like a Cucumber. We cannot be quite certain which of the species it is from the specimen sent, but we have very little doubt that it is the common one, *Philadelphus coronarius*, which is commonly called *Syringa*. (H. S.).—We believe your Pink to be *Dianthus deltoides*, or the Maiden Pink. This, like all other Pinks, can be readily increased by cuttings at the present time, or by division of its stems at any season. Little rooted side-shoots are always to be found in these kinds of plants, and may be taken off at any time. These pretty little Pinks are very suitable plants for a rockery; but every two or three years should be taken up, replanted, and divided. There is a white variety of this which is very pretty, and is called *Glaucæ*. (R. F. S.).—We cannot make out the name from the single flower and two leaves. Send another specimen in damp moss.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

JULY 21st. PRESCOT. *Sec.*, Mr. James Beesley, Prescott.
AUGUST 10th. ORMSKIRK and SOUTHPORT. *Sec.*, Mr. James Spence, Ormskirk. Entries close the 22nd of July.
AUGUST 19th and 20th. BRADFORD. *Secs.*, Mr. A. Hardy, Bowling Old Lane, Bradford, and Mr. E. Blackburn, Black Bull Inn, Ive Gate, Bradford. Entries close August 12th.
AUGUST 25th, 26th, and 27th. MACCLESFIELD. *Sec.*, Mr. W. Roe. Entries close August 10th.
AUGUST 27th. HALIFAX. *Sec.*, William Irvine, Holmfild, Ovenden, near Halifax.
AUGUST 29th, 30th, 31st, and SEPTEMBER 1st. CRYSTAL PALACE. Poultry, Pigeons, and Rabbits. *Sec.*, William Houghton. Entries close Saturday, July 30th.
SEPTEMBER 22nd. BRIDGNORTH. *Sec.*, Richard Taylor, Bridgnorth.
OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. *Sec.*, Geo. Griffiths, 7, St. Swithin Street, Worcester.
NOVEMBER 28th, 29th, and 30th, and DECEMBER 1st. BIRMINGHAM. *Sec.*, Mr. J. Morgan, Bingley Hall, Birmingham.
N.B.—Secretaries will oblige us by sending early copies of their lists.

APPROACHING POULTRY SHOWS.

If any opinion may be formed from the shows that have already taken place, it is fair to believe that these popular meetings are likely to be very well supported during the present year. All, hitherto, have been successful, and the entries have been numerous. The quality of the birds has left nothing to desire; and exhibitors have shown they fully understand how to match and send them. But, as from some cause or other, intending exhibitors are very often too late in making their entries, we believe we are only doing our duty in reminding our readers that the entries for the Crystal Palace and Worcester should now be made. There is ample time for the latter; but the entries for the Crystal Palace close on the 30th of the present month. There are many reasons why this Exhibition should be well supported. It offers a liberal prize list. The birds are always punctually returned, and all payments are made at once. This is the Metropolitan Show; and Londoners can invite their friends into Fairy Land to enter into competition with them, and to enjoy whatever their tastes may lead them to. Flowers, music, statues, antiquities, and a Poultry Show! We fancy on this subject we could be as eloquent as cheap John at a fair, and after getting out of breath in enumerating all the delights and charms of a day, wind up by saying, "and all this for a shilling!" We always think this is the Show for Paterfamilias. There is not a family without one lover of animals in it, and there is no other Poultry Show where a day can be spent as a holiday by children. The season has been favourable for early chickens, and we hope that many breeders will test the merits of their chickens at the Crystal Palace.

We have also much to say for Worcester. There the Committee are punctual in all things, and neither during nor after the Show is there ever any "hitch." Such shows deserve all the support amateurs can give them. These summer and autumn competitions are very valuable to the public, inasmuch as they enable owners to form a just estimate of the merits of their birds. Every one knows that no real opinion can be

formed except by comparison; and this can never be so well practised as at a show, where many of the same breed are side by side, and where the decisions are those of known Judges. As it is well to view a question in every aspect, we may also add these shows afford a good opportunity for disposing of stock. A good pen of chickens, even at a moderate price, will go far to pay the expenses of some weeks; and if the operation be repeated now and then, the poultry-yard will be not only a pleasure but a profit. We knew a gentleman, and he is known to many of our readers, who exhibited for years. He attended all the principal shows, sent three or four pens, and he said that, independent of the treat, he always brought away £5 beyond his expenses. This may be done by many. One great art is, to select the birds so that they shall be worthy of notice, in the way of commendation, by the Judges; and another, to put such birds together as shall be worth the price put upon them.

If the instructions we have been giving, and the advice we have offered with regard to the weeding of the yard by killing worthless birds, have been followed, there will be none now that are not perfect in shape and colour, although, perhaps, not first-class birds. The knowledge that the strain is good and pure, that the birds are worth the money put on them, will always induce buyers; and a little attention to these things will cause certain strains to be looked for at Shows. There is no reason why a hobby should not be self-supporting, nor do we know why a profit should be refused or neglected. We hope the day is passed when poultry was thought beneath notice; and we know that many amateurs, men of affluence, derive profit from it. It is the result and guerdon of attention. Whether it be in a pursuit or a hobby, a mind imbued with a spirit of order cannot help making business of everything—that is, the rules of business are carried out, whether it be in the farm, the clothing club, cottager's relief fund, or poultry-yard, all admit that poultry is indispensable to a country life and residence; and there are, perhaps, as many pleasures connected with it as with any of the numerous pursuits of a rural life. It is no small merit that we can add, without fear of contradiction from any one, that it is so innocent none can say a word to its prejudice.

BRAHMA POOTRAS.

THE controversy in your columns on Brahmas interested me much; and acting on the advice "J. K. F." gave "ALPHA," I obtained eggs from a good stock, and the result, as throwing a little light on the subject, I beg to hand you.

One dozen eggs from Mr. Botham, Slough. Eleven chickens, one with single comb died the seventh week; reared the remainder.

FOUR PULLETS.—Two grey; fairish match. One inclining to a brown shade, and rather mottled. One very light plumage, slightly speckled legs, very few feathers, single comb.

SIX COCKS.—Three very light, slightly speckled; one with single comb. Three darker, mixed colours, much red on wing.

You will observe by this that I had only two match birds, the plumage of the remainder being of a very unsettled character, and, I may add, very difficult to describe. Facts are stubborn things.—HENRY ALLEN, *Tottenham*.

ANOTHER WORD FOR MALAYS.

I HAVE just re-commenced taking in your valuable weekly paper; and in No. 561 was glad to find a communication from Mr. Hewitt, calling the attention of committees and amateurs to the comparatively disregarded merits of the "Malays." Time was when this valuable breed was amongst the foremost in the estimation of poultry fanciers; but the introduction of the Cochin diverted public attention from them, and many who had previously excelled in the former breed went eagerly and fully into the latter; the result being that a decline took place in the number of persons who reared Malays, and, consequently, in the entries at exhibitions, and this has led some committees to decline giving them a *separate class* in their shows. Some, however, of the principal Societies, recognising the *distinctive* merits of this breed, have continued to place them on an equal footing with others; and wherever this has been done (though the prizes offered have been less in amount), a first-rate collection has been drawn together. I may allude to the Crystal Palace, Birmingham, Bath

and West of England, Beverley, Sheffield, &c. I would, however, in alluding to this breed, desire to follow up the remarks of Mr. Hewitt, by urging upon our Poultry Committees the justice and desirableness of dividing the classes for this breed into "White" and "Coloured," and also giving a class for "Single Cocks." From the result of some of the recent exhibitions, it is clear the Coloured have no chance against a really good pen of the White; and it is hardly fair to compel exhibitors of both varieties to show in the same class. I hope to see this alteration made in the Winter Show at the Crystal Palace; and from the large number of White Malays kept in the neighbourhood of the metropolis, I have no doubt but a large number of entries will be made in both classes.—F. W.

KEEPING PIGEONS' EGGS.

"How long may Pigeons' eggs be kept prior to their being put under the hen to hatch them, in case the hen which laid them is a bad siter, or that the cock bird has died, or that the eggs are wished to be sent away to a friend?"

"Also, the age of birds to breed from: how young? And the age to cease to breed from: how old?"—E. G. M.

[Pigeons' eggs, if kept in a cool, dry place, will, I believe, keep good for hatching for a fortnight. Young Pigeons generally begin to breed at six months old; a little sooner or later according to the time of year. At eight years, Pigeons become less productive. I have had one breed well at twelve, and I heard of one still productive at twenty.—B. P. BRENT.]

EXOTIC HONEY BEE.

I HAVE just been favoured with a sight of a letter (dated 5th July), addressed to a friend by H. C. Hermann, Apiculteur, of Tamins-by-Chuz, Canton Grison, Switzerland. The writer's object is to introduce to the notice of English apiculturists a native bee, of which it is possible some of your readers may have knowledge. M. Hermann is but imperfectly acquainted with our language; but with a little emendation and abridgement he shall speak for himself. "I take the liberty to make you an offer of bees of the yellow Ligurish (?) race. This species of bees is here at home in the Italian Switzerland, and is not in any other country. It is much greater than the common sort you have in England; has two red circles, and is more gentle; makes more progress in making honey as well as bee-swarms, and seldom they do prick (sting?) From this race I send a great many to France, Germany, and Bohemia; as this species is of great utility for the experience, science, and practice of bees." The writer, moreover, informs us in conclusion that "I make no other things than cultivations of bees." On reference to an article on foreign bees in the "Naturalist's Library" (I believe by Dr. Dunbar), I find as follows:—"Besides the *Apis mellifica*, which has extended itself over the greater part of Europe, the *Apis ligustica* of Spinola, *A. ligurienne* of Latreille, is cultivated with success in Italy, and is probably the same species that is found in the Grecian Archipelago. In its physical character it nearly resembles our own hive bee; the difference consists in the two first rings of the abdomen, and the base of the third being of a pale reddish colour instead of brown."

I am led to conclude that the bee here described and that of M. Hermann are the same; and it would much redound to the credit of some of our apicultural associations if they would turn their attention in this direction. A few years ago I recollect hearing of a stock of foreign bees in the possession of a gentleman, I think near Derby, a good deal answering to the foregoing description. At this travelling season of the year it is not an unreasonable speculation that some curious English apiarian may find himself in the neighbourhood of Tamins-by-Chuz. If such a one will favour us with the result of his inquiries on the spot, and other needful information towards the introduction of these strangers amongst us, he will deserve well of his country.—T.

BEESWAX, POLLEN, HONEY, &c.

"MR. WIGHTON is right this time; bees will fabricate new comb from old wax. This fact has only recently come under my notice." Thus writes (privately to me) an apiarian friend, and co-reader of THE COTTAGE GARDENER. And, singularly

enough, this very morning (July 1), I have had ocular demonstration of the same fact in one of my own hives, into which I had placed a quantity of old comb before putting into it a couple of united swarms about a week ago. The bees have builded upwards as well as downwards, and evidently have worked up the old materials as a foundation for their new combs. I thank Mr. W. for his offer to send me a specimen of similar comb, which, however, is now unnecessary. The fact is abundantly proved.

I observe that Mr. Wighton, at page 188, again asserts that "the same state of weather which is favourable for flowers producing pollen is equally so for honey." Also, that bees "never collect pollen alone, though, of course, they often do honey." Surely this is rather "reckless" writing in the same paragraph in which he states that "that curious process is little known." I can only repeat that my experience of bees collecting honey and pollen is totally at variance with the above statement. More on this subject it is unnecessary for me to say. I will only add that I do not feel compelled to drop my *incognito* (such as it is) at Mr. Wighton's challenge, as I am wholly guiltless of having "taunted" him "for having exposed false theories," &c. I have objected, on the contrary, as all the world knows, to his putting forth theories, not necessarily "false," but, at least, unsupported by facts; and, as I believe, for the most part, erroneous.

Since writing the above several days have elapsed, during which we had some severe thunderstorms and abundance of rain, which have ushered in the present glorious old-fashioned summer weather. Now it is curious (and it goes against Mr. W.'s theory) that my bees have suddenly recommenced collecting honey with activity and success after a long period of much pollen, and little honey gathering. June has been a fine month on the whole, somewhat dry, but extremely favourable to the bloom of all kinds of flowers; and yet my six colonies, while thriving extremely well as regards population (which supposes an abundance of pollen), have scarcely added to their stores since the beginning of the month. There may be honeydew about, although I see the bees very active among the flowers; but be this as it may, I conclude that there often is much pollen with little or no honey in the flowers.—B. & W.

DO BEES MAKE WAX OF HONEY?

I THINK I have positive proof that they do. I have several late swarms of bees in the queen bee-hive, and in February I put some pieces of comb on the top of the hive, and as they ate the honey out, I would refill it. The pieces of comb were from one to two inches apart, and while there was snow on the ground and so cold that they did not go out, they made new combs between the pieces and connected them together—made perfect cells as they do in summer. If they do not make wax from honey, will some one please inform me what they made it of in this last? The comb is free for inspection.—S. P. TRUSDILL.—(Prairie Farmer.)

OUR LETTER BOX.

RATS (*An Old Subscriber*).—Try phosphorus pills put into their burrows and runs, out of the reach of your fowls.

SALT FOR FOWLS (*Idem*).—Our correspondent would be obliged by "the Fermanagh Irishwoman," stating the quantity of salt she gives to her fowls, and how she administers it. Our correspondent says that salt has been tried, "but always with fatal effects."

POULTRY HOUSE PLANS (—).—Buy our "Poultry Book for the Many," and a carpenter will give you an estimate for the one you select.

ANDY HANDY.—We require your direction for a letter from Mr. Brent.

RUNS FOR FOWLS (*J. Rollins*).—Let them have an open run most certainly, rather than a confined space—they will be the more healthy. Buy our "Poultry Book for the Many." For sixpence you will find an answer to your other queries, and other useful information.

LONDON MARKETS.—JULY 18.

POULTRY.

The trade is gradually falling off, and the extreme heat of the weather makes a correct quotation difficult. A few very fresh goods make larger prices than they would if the heat were less.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls	5	0 to 5	Turkeys	0	0 to 0
Smaller ditto	3	6, 4	Pigeons	0	8, 0
Chickens	2	0, 3	Guinea Fowls	0	0, 0
Geese	5	0, 6	Rabbits	1	4, 1
Ducks	2	0, 3	Wild ditto	0	8, 0

WEEKLY CALENDAR.

Day of M th	Day of Week.	JULY 26—AUGUST 1, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
26	Tu	<i>Olea sativa.</i>	29.906—29.879	75—44	S.W.	—	16 af 4	57 af 7	morn.	26	6 13	207
27	W	<i>Oxalis divergens.</i>	29.861—29.688	75—55	W.	—	17 4	55 7	30 0	27	6 13	208
28	Th	<i>Cassia baecharis.</i>	29.976—29.763	71—35	E.	.52	19 4	54 7	43 1	28	6 13	209
29	F	<i>Adenandra fragrans.</i>	30.016—29.995	69—33	N.E.	.02	20 4	52 7	sets	29	6 11	210
30	S	<i>Duvana latifolia.</i>	30.098—30.053	78—38	N.W.	—	22 4	51 7	12 a 8	1	6 10	211
31	SUN	6 SUNDAY AFTER TRINITY.	30.151—30.116	79—40	N.E.	—	23 4	49 7	30 8	2	6 7	212
1	M	<i>Bubiana villosa.</i>	30.244—78.134	78—34	N.E.	—	25 4	48 7	46 8	3	6 5	213

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 74.9° and 51.8°, respectively. The greatest heat, 92°, occurred on the 28th, in 1844; and the lowest cold, 37°, on the 28th, in 1857. During the period 112 days were fine, and on 112 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

THE conservatory should now be gay with Balsams, Cockscombs, Fuchsias, Globe Amaranths, Heliotropes, and the varieties of Japan Lilies. Strict attention must be paid to all plants in these structures that they do not suffer from the want of water. Continue to stop over-luxuriant growth, to obtain compact, sturdy specimens. On the evenings of hot, dry days, after the plants have been watered, give them a slight syringing, or sprinkling, over the leaves, and also the ground upon which they are standing.

AOTUS GRACILLIMUS.—When done blooming, to be cut down close to the pot.

APIELEXIS and HELICHRYSUMS.—When past their best state, cut the flower-stems close into the old wood; to be set in a cool shady place until they begin to grow, when any that require it may be repotted.

CINERARIAS.—Pot off the first batch of seedlings and offsets. Sow seed.

CHRYSANTHEMUMS.—Propagate by cuttings, or layers, to obtain dwarf stocky plants. Continue to top the plants that have been planted out in rows in the open ground, as advised some time ago.

FUCHSIAS.—Shift in the last batch, and put in cuttings.

LESCHENAULTIAS.—When they are going out of bloom, or past their best, remove the flowers and flower-buds, and put them in a cool place to start again.

KALOSANTHES.—When done blooming, the flower-stems and all straggling growth to be cut in closely, to form compact specimens for another season.

PELARGONIUMS.—Cut back the principal stock, and treat them as advised lately.

PIMELEA SPECTABILIS.—When that and the other kinds have done blooming, to be freely cut in, and to be set in a cool shady place to break.

POLYGALAS to be treated in the same manner as the *Pimeleas*.

STOVE AND ORCHID-HOUSE.

Look out for insects in the stove, and destroy them as soon as visible. The *Gishurst Compound* is worthy of a trial. Follow former instructions as to moisture and air.

IXORAS.—When done blooming to be cut in rather closely, to be started in a gentle heat to make fresh growth. The Orchids suspended on baskets, or on blocks of wood, require a soaking of water at the roots, and frequent, but slight, syringings overhead. A little fire-heat applied in the afternoon will be of service to them.

FORCING-HOUSES.

FIGS.—If the second crop on the earliest trees is advancing towards maturity, as soon as the fruit begins to ripen the atmosphere should be kept dry and rather cool, giving air freely every fine day. Keep the foliage clean and healthy, and clear from insects, and do not allow the young shoots to get crowded.

MELONS.—Keep up a good bottom heat when the fruit No. 565.—Vol. XXII. No. 17.

is setting. Keep the plants on which the fruit is ripening rather dry at the root, with an abundance of air in fine weather.

PINES.—Air to be admitted freely during this hot weather to fruiting and succession plants. Particular care will be necessary in the application of water that they may not suffer for want of it, or by saturation. The walls, paths, and surface of the bed to be kept constantly moist, and frequent syringings to be given to the young stock. Continue all other routine operations according to former directions.

STRAWBERRIES.—Some lay the runners at once into pots of strong, rich loam, cutting them away from the parent plants when they have made roots enough for their own support. Some prefer to lay them in small pots, to be shifted into larger by-and-by, and others prefer to lay them in their fruiting-pots. The principal object should be, to attain plants of a moderate growth, well matured and rested before forcing time.

VINES.—The early houses, when they have been cleared of their fruit, and the wood is properly ripened may have the sashes removed and repaired, if required; indeed, every house is purified by free exposure to the atmosphere for some time. The late crops to be encouraged to swell by giving the borders good soakings of manure water, and by being carefully thinned, more especially if they are wanted to keep late. A little fire-heat will be necessary in unfavourable weather, with an abundance of air day and night. WILLIAM KEANE.

SUMMER PROPAGATION OF GERANIUMS—STANDARD GERANIUMS.

THE first time I had *Baron Hugel* and *Harkaway* Geraniums for the Experimental was from Shrubland Park, and it was on the 27th of September when I potted the cuttings. There were over one hundred cuttings of each; and I recollect putting, on the average, twenty-five cuttings in each No. 48-pot. So, you see, the cuttings must have been very small indeed. The two kinds produce cuttings which take up less room than the same number of the cuttings of the *Golden Chain*:

The end of September is the most economical time to put in Geranium cuttings to stand in the smallest compass during the winter; and, of course, the smaller the cuttings are—I do not mean the shorter they are, but the less thick and succulent they are—the more of them can be put in one pot, and the less number of pots will be needed. But there is no gain at all in the plan at planting-out time; the smaller the plants are the more of them will be needed. The only thing that can be said in favour of late autumn Geranium cuttings is the small space they will occupy in winter.

Last October, two or three days before the frost came, I had a row of seedlings from *Dennis' Alma* and other hybrid perpetual Geraniums, and not one in the row had then bloomed; but the plants were almost big enough for a show, and to house them was out of the question. It was equally hard to lose them without proof. To take up the

smallest possible space with them during the winter, I took two of the smallest shoots from each plant, made three-inch cuttings of them, and put the two, or each kind, in one small pot,—some of the pots were smaller than 60's. Every plant in the row had one small pot for itself, and in most of the pots were two cuttings. They were put high up on a top shelf, near the glass, and I think it was well on in February before I saw the first root out through the hole. They took full four months to strike, and I only lost one or two out of nearly a hundred; but I gained my purpose by saving the kinds, and in no other way could less room be taken with less risk of losing some. I am now using them for cut flowers only, but I made a discovery.

Dennis' Alma has not produced one seedling—that is, one crossed seedling better than itself. *Virginian* is the mother of *Blanchifleur* and of *Larksfeld Rival*. I have them both in the batch, and from the nurseries. *Countess*, as pure and innocent as a child, has come on a plant strong enough for anything. I never knew such a thing happen before.

At the end of last September I found myself in the "lurch," or in the wrong box; 500 and some odd of my best batch of seedlings had not then shown a truss. I took one cutting off each, sized the cuttings into three sizes—small, smaller, and smallest, and put them into 48-pots as thick as I did the *Harkaways*, and I do not think I lost more than three out of the lot.

Late cuttings of Geraniums, therefore, are very useful in more ways than one. But let us take the other side of the case, the side next to London, and go back to the middle of June, 1858: that was a tremendous time for blooms to stand against the burning sun before the plants got well established. My best seedling then was the *Imperial Crimson*, and I had only five plants of it, and a pot full of late April cuttings, which I planted out with those five in a bed. About Midsummer-day I began propagating the *Imperial*, and in three months—that is, by the middle of September—I had nearly 600 plants of it, all well-rooted and ready to store away for the winter. Now, suppose any one who had an early plant of it were to begin this week to propagate it, how many plants ought he or she to have by next October, when he could take off the tops of all of them, and put them in to root in the four winter months? You recollect that all Geranium leaves will root from the foot-stalk; and if the bud at the bottom of the leaf-stalk is taken with it, any moderate striker might turn every Geranium leaf now in England, Ireland, and Scotland into a perfect plant by the natural heat of the season. Well, a great number of my cuttings of the *Imperial Crimson* were put in this time last year, with little more than the bud to each cutting. The greatest extravagance was in the use of the very tops; two joints, and two and a half sometimes, had to be used. The whole number were put in on a flat piece of level ground, in the centre of my kitchen garden, right full in the sun, and never a thing put between them and the sun; but they were watered every evening, and they stood there till Mr. Henderson saw them, and snapped them up at one mouthful. I did not tell him how closely I wrought them, but ten to one if he did not go at them sharper by many degrees than I did; so that between us the dear little *Imperial* has had a hard twelve months of it, and the next nine months do not seem to be able to give it more rest; but after that, and one good season's growth, the true conservative character of the *sport* will be manifest. It is not a true cross. Out of two or three hundred seedlings by the same parents, it was alone of that new style of rigid, upright style of growth. I have two more seedlings this year of the same kind of growth, but their flowers are not worth anything. These three are the only samples of the Lombardy Poplar kind of growth I have ever met with. But there is a medium in all things—a half way between the two extreme ends—and we are now very near that middle

point. The fast style of June propagation, as with the *Imperial Crimson*, the economical mode adopted at the fog end of the season, will only serve particular persons and purposes; but the middle point concerns us all, and there is more in it than many good practicals are aware of. Were it not for that move, the 1st of September would be time enough to begin bedding Geranium cuttings.

By the end of July, on the average of seasons, the growth of most bedding Geraniums is just at its prime for cuttings—it is neither too rank, as it will be in another month, nor is it any way stinty. Cuttings made from spongy, sappy, late growth, will need about double the care in looking after them all the winter, and are only fit for where lots of glass and good gardeners are kept. The effect on rank, late cuttings is this—the amateur must keep them more dry in winter than the gardeners, because he has less command of heat and room; and when you come to that, the thick, soft wood of the struck cuttings will shrink considerably in three months, the sap-vessels get closed like drains into which Elm roots had found their way; and when the spring sap rises, it gets up as slowly through those choked passages as the snow water and spring rains find their way down among the Elm roots. The next effect, consequent on this bad wintering, is the length of time it takes to get these plants into a fair bloom after they are planted out in the beds. Did you never observe that some people's beds are in bloom the next week after planting, and never cease from then, while others hardly get a decent truss in less than three weeks, besides having all the old leaves browned with the sun? But when the sun is at the hottest and most sultry and stifling point, leaves do not brown; nothing like it. They are greener than ever if they lack not for moisture at the roots: so it comes to the same point. Lack of food, and leaves droop only; but the freest supply of it does more harm than good. When the passages up to the leaves have become sunk and shrivelled, the leaf-stalk is then too stiff to bend; it holds on; the leaf cannot droop away from the sun, and so is scorched to the point of browning; and few lay it to heart, or seek out and fathom the cause, putting the blame on everything under the sun but the very thing which caused the vexation—and that thing was the injudicious selection of cuttings in the autumn before. Therefore, if ever you meet such cases as these in your own place, or practice, just think upon what time you put in the cuttings, and you will find to a certainty that your tale would tally with my story; and the best thing you can now do is to square your practice with my experience, and let every one of your Geranium cuttings be well rooted by the last day in August; and the sooner you begin now, the faster they will root, besides being in a far better condition than they will be a month hence.

Then, as to the work itself. I have the most decided objection to strike autumn Geranium cuttings in pots, or on the north side of a wall, or anything, or under hand-glasses. But I see no objection to having them in shallow turf, or any cold pits facing the south or west, provided the lights are left off at night from 10 A.M. to 4 P.M. The glass might be drawn over them, and a single mat put over the glass; but let the mats be off by 4, and the glass not later than 7 P.M., all through August; but by far the best place in the long run—that is, looking to the winter and the planting-out time, is the hottest and most sunny place in the garden. I am quite certain of that. I have just now two or three kinds from seed which are more dwarf and much more tender than the *Golden Chain*, and the cuttings from them about St. Swithin's day could not be had over two inches long. Yet I put them in close by the side of the plants on a hot border under a wall; but I put some of the same kinds into a close, cold frame; and I never put cuttings in a hotter place in all my life than that cold frame was at that time. Those in the sun rooted better and faster, however. I put three cuttings

of the *Golden Chain*, and three cuttings of *Harkaway*, on the same border, and in the same frame, on the same day, for an experimental trial which is just going on. But the same week I put in ninety cuttings of a particular seedling on that border; and not to lose one hour with them, I put a cradle over them, on which I put mats from ten till four or five, and they were slightly damped twice a-day, and the last thing at night, and not one single leaf drooped or turned yellow. It was on a Saturday afternoon, and by next Saturday I did without the mats, and the cradles were cleared off. The ninety cuttings were, most of them, twice and three times the length and substance of the *Imperial Crimson* cuttings last June twelve-months, and the latter had no sort of screen or shelter—they stood in the middle of the garden.

I have a few dozens of standard *Nosegays* on their own roots; the stems are from one foot to thirty inches—say half standards as compared with *Roses*. No ribbon-border will be complete without one row of standard *Geraniums* at the back. They are easily made if you begin at the beginning—that is, begin with the cutting, and take out the two lowest eyes when the cutting is made; all the other eyes will be above, and you have only to watch them and pinch the shoots from them as often as they push, all except the leading or top shoot. If that leader do not go straight up, stake it, and compel it to go as you wish. When it is high enough, stop it, and make a head of the next three or four top eyes which will soon shoot after it is stopped. Keep all the side-shoots in short spurs all the summer, and they will lay, strengthen, and hold fast the foundation of your future standards. But I get my standards much easier. I plant seedlings so close that they draw up one another; and if the ground is very rich, they will be three feet long in the stems by the middle of September, when they generally bloom for the first time. Then, if I want a standard of any particular kind, I cut off, clean down to the stem, every one of the side-shoots and make cuttings of them; and the top part, which is not yet broken into side-shoots, I disbud when I take them up. Such plants will never push a sucker or a side-shoot.

But talking about cuttings no more than two inches long, I had to make one cutting at the end of last May, and it was twenty-five inches long and rooted amazingly well. One favourite standard died at the collar, and it had to be cut to the sound part, and stuck in the border where it soon rooted. So we cut according to the cloth, the custom, and the fashion.

D. BEATON.

HORTICULTURAL SOCIETY.

THE GREAT GARDEN SCHEME AT KENSINGTON GORE.

THE adjourned meeting of the above Society, for the further consideration of the great horticultural garden at Kensington Gore (the particulars of which we published in *THE COTTAGE GARDENER* of the 12th inst.), was held on Wednesday last in the house of the Society of Arts, John Street, Adelphi.

The attendance on the occasion was small, there not being at any one time thirty-five members present. It seems as if the Fellows—indeed, many of those who were present at the former meeting—absented themselves from this; and the large theatre of the Institution, which the members of the Horticultural Society could have crammed had they so pleased, presented a beggarly account of empty benches. If we except the members of the Council, who were, to a certain extent, bound to be present, the remaining number would barely have sufficed to have called from their sleep the echoes of the place.

We have not the most distant desire to throw cold water on the matter; but we think within ourselves, that as the establishment of such gardens should be for the benefit of horticulture in the abstract, above all other considerations, as well as a great boon to the public, the Royal Commissioners should devise some reasonable plan by which, in the event of success, this plot of ground could ultimately become the freehold property of the Society, or that the Society should, at least, become co-freeholders with the Royal Commissioners.

Unless the terms can be considerably modified, both as regards tenure and re-entry, the particulars of which will be found detailed below, we feel we must, in the conscientious discharge of our duty in this Journal, tell our friends not to be too sanguine of their investment. It is true, the scheme is ushered into being with considerable *éclat* and patronage. Her Majesty leads off with a subscription of £1000, and His Royal Highness the Prince Consort with the sum of £500. In addition to this the Queen will take life memberships for the whole of the Royal Family, nine in number; whilst the Prince will subscribe another £1000 in debenture stock. Well, this looks encouraging; and whichever way it may go, we trust His Royal Highness will be no loser, for he has some very costly property surrounding this estate, which, let us hope, these magnificent gardens will benefit. Instead, however, of a thirty-one-years' lease, why not give the Society a fifty-years' lease, with the right of accepting and redeeming the debentures of the Royal Commissioners, and in virtue of that, becoming absolute owners of the soil. Then there would be something for the present generation of horticulturists to work for, and a hopeful legacy to hand to the next. If some larger-based terms are not agreed to, we do not think that any person, to whom a hundred pounds is of greater consequence than the expenses of a summer holiday trip, ought to invest a single shilling in the plan. To men of comparative wealth, a debenture or two, at £100 a-piece, are of no great consequence; they will be well repaid by the excitement which is sure to attend the trial of such an experiment, and the satisfaction of bringing to solution the commercial value of a speculation of this peculiar and untried character. For the enthusiasm with which it has been ushered into the world we do not care much; other speculations have been equally well heralded. Have we not before us the example of the Crystal Palace at Sydenham, with representatives of almost everything in nature, in science, and in art?

The Crystal Palace has all these varied attractions, yet we have never heard of any of the Directors forsaking the drudgery of this money-getting world, and retiring to the land of millionaires, by reason of the accumulative dividends of that very enterprising concern. We do not say that the gardens will not be made, that the money will not be forthcoming; but we do say, that for persons to whom money is a consideration, too much caution cannot be exercised in entering into an engagement of this nature. Let us, however, now return to the meeting.

Amongst the Fellows and members of the Society present were His Grace the Duke of Leinster; the Earl of Ducie; Sir Philip Egerton, Bart., M.P.; Sir Joseph Paxton, M.P.; Sir Peter Pole, Bart.; Mr. H. G. Bohn; Mr. R. Hogg; Mr. C. W. Dilke; Dr. Lindley; Mr. Holmes Godson; Mr. Edmonds; Mr. Veitch; Mr. Cole; Mr. Wood; Mr. Clutton; Mr. John Reeves; Mr. Saunders; and Mr. Charlwood.

The Earl of Ducie, as President of the Society, occupied the chair.

The noble CHAIRMAN opened the proceedings by calling upon the Secretary to read the minutes of the last meeting; which, having been done, they were put to the meeting and confirmed.

The CHAIRMAN then said, he believed he should be best discharging his duty if he did, as shortly as possible, state what position they were in at present. The Council came to report what progress had been made with the Royal Commissioners since the last Meeting. He was happy to inform the meeting that considerable modifications had been made in the terms of the agreement for the lease, which he believed would be much more acceptable than the previous ones. Although no special exertions had been made to raise funds, the subscription list showed no less a sum than £11,000 in the form of "life-memberships, donations, and debentures," which were intended to be taken by different parties (hear, hear). With regard to the different plans of the gardens as placed round the room, he might incidentally state, that in the part which the Horticultural Society would have to form, they were by no means pledged to any exact plan. If they should be enabled to proceed with the scheme, the Council would take the best possible advice, and adopt the best suggestions in carrying out that upon which so much would depend. He would not detain the meeting longer, but call upon the Secretary to state what progress had been made since they had last met together.

The SECRETARY said that at the last meeting it was stated that the terms of the lease were such that some further consideration would have to be directed to them. The original

proposal was to guarantee the terms for thirty-one years on the conditions stated at the last meeting, and with which the members were already acquainted; but there was nothing said as to what would be done after that time, and a resolution was passed to make some inquiries on the subject. The Council accordingly wrote to the Royal Commissioners, and, in answer to that letter, the following communication had been made to the Society. It had been sent by Mr. Edgar Bowring, the Secretary to the Commissioners, and he would read the contents to the meeting:—

“Whitehall, July 18.

“Sir,—I am directed by Her Majesty's Commissioners for the Exhibition of 1851 to acknowledge the receipt of your letter of the 14th instant, in which you inquire, with reference to the proposed lease to the Horticultural Society of a portion of the Kensington Gore estate for a period of thirty-one years, what is the position which the Commissioners contemplate assuming at the expiration of that term, and whether they will then be willing to renew the lease to the Society if the management shall have been satisfactory to the Commissioners and the public.

“In reply, I am to acquaint you, for the information of the Council of the Horticultural Society, that being anxious to meet their wishes as far as possible, Her Majesty's Commissioners will be prepared to add to the arrangement with the Society proposed in their letter of the 4th inst. stipulations to the following effect:—

“Upon the Society giving to the Commissioners two years' notice previous to the expiration of the lease, the lease shall be renewed for a further period of thirty-one years, upon the same conditions as to rent, management, &c., as those already proposed by the Commissioners with reference to the original lease.

“Her Majesty's Commissioners, however, reserve to themselves a power to decline so to renew the lease upon taking upon themselves the responsibility of any of the debentures now proposed to be issued by the Society, that may be outstanding at the expiration of the thirty-one years, to any extent not exceeding a maximum of £20,000. On the other hand, with a view to reducing as far as possible the debenture debt above alluded to, the Society shall agree to devote in each year during the continuance of the lease not less than 50 per cent. of their moiety of the net surplus balance of receipts (after the Commissioners' claims for rent, as set forth in my former letter, are satisfied) for the purpose of paying off outstanding debentures.

“In the event of the Society being unable for any period of five consecutive years during the first term of thirty-one years, or during the renewed term, if there be one, to pay the interest on the £50,000 proposed to be borrowed by the Commissioners (and which interest, according to the original proposal of the Commissioners, is to be a second charge on the net receipts of the Society), the Commissioners to have the right of re-entry without payment of compensation to the Society.

“Her Majesty's Commissioners have, lastly, to stipulate that the Society shall not underlet or dispose of their lease, either during the original or the extended term, without the consent of the Commissioners being previously obtained.

“I have the honour to be, sir, your obedient servant,
(Signed) “EDGAR A. BOWRING.”

That letter stated what the Commissioners were prepared to do. In addition to sixty-four life-memberships £1800 had been taken by the Royal Commissioners themselves (hear hear). He held a list of donations and subscriptions in his hand, which he would read to the meeting.

The list, which was a lengthy one, was then read. It commenced with Her Majesty's donation of £1000; the Prince Consort's of £500, and £1000 debenture stock, the particulars of which appeared in our impression of July 12. The whole amount was, as has been already stated, over £11,000. The Secretary continued. The Council had resolved that those debentures should be of the full value of £100 each, to bear interest to the holders at the rate of five per cent. In addition to the five-per-cent interest, they would have the right of admission to the gardens on all occasions, such admission to be transferrable on the payment of a small registration fee.

Mr. GRISSELL.—What was the difference between a life-membership at twenty guineas and one at forty guineas?

The SECRETARY replied that the forty-guinea member had the right of admission himself to the gardens, and he was also furnished with an ivory ticket the same as the Fellows, which he could lend to a friend. The twenty-guinea subscribers had no ivory ticket.

In answer to another question from Mr. Grissell, the Secretary again read the terms upon which the Society was to have the gardens.

Mr. GRISSELL referred to that part of the last letter from the Royal Commissioners wherein it was stated that, in the event of the Society being unable for five consecutive years to pay the interest (or rent) of the £50,000 borrowed by the Commissioners, that the Commissioners should have the right of re-entry, and take possession of everything. He thought that such a condition should be very considerably modified, or expunged altogether; otherwise he did not see how confidence was to be placed in the scheme (hear, hear).

Sir PETER POLE would also be glad to have more precise information on that point (hear, hear).

Mr. BLANDY said, according to the calculations of the Council they were to have a clear £8000 income from the Gardens (hear, hear). The gross income was estimated at £17,475, and the expenditure at £9400, leaving £8075 clear. If, therefore, they were to have confidence in these estimates, there could be no doubt about the interest on the money being paid. The first charge on income, he believed, would be the interest on the £50,000 borrowed by the Society; and the second charge would be the interest on the £50,000 borrowed by the Commissioners, which would be recognised as rent. The remainder would be divided between the Royal Commissioners and the Society in equal proportions. He believed the calculations had been thoroughly tested, and the Fellows generally had been satisfied with the accuracy of these calculations. If, therefore, they were based on a good foundation, there could be no hesitation in arriving at the conclusion that there would be sufficient to pay the amount of interest on the debentures proposed to be borrowed.

Mr. WOOD asked what was to be done with Chiswick. What portion was to be kept up in order to get rid of the old debt now existing?

The SECRETARY said there had been a communication between the Council and the Duke of Devonshire on that subject. The Duke would take back such portion as the Society might desire to surrender, and let them keep what they chose. That would be to reduce the cost of management to the Society. The Royal Commissioners will have to recognise £1000 a-year, supposing Chiswick to cost so much.

Mr. WOOD wished to know what pecuniary compensation they were likely to obtain from the Duke of Devonshire for that portion of Chiswick which they would not require in future, and whether they could remove such things as they had there.

The SECRETARY replied that there would be no pecuniary compensation. As to the removal of anything the Society had, there would be no difficulty about the removal. They could remove everything appertaining to horticultural purposes: all plants and trees worth removal would be taken away. There was a large iron conservatory which could be removed; but beyond that he did not know anything that was likely to produce much money.

Sir PHILIP EGERTON rose and proposed the following resolution. In doing so, he thought the course adopted by the last meeting was a very wise and judicious one—viz., that of adjourning the proceedings. Many were not at all prepared for the scheme that was proposed to them. To many it looked like their old friend Mr. Briggs, so well illustrated by Leech, who, when the pheasant fell before him, thought that his shot had brought down a lot of fireworks about his head (laughter). It would not have been fair to decide the question at the former meeting, and he now believed that the British public had come forward liberally. There would be a good opportunity for people going to see the gardens, and would subscribe accordingly. He thought the country had behaved with great liberality (hear, hear). Take the finest works of art—sculpture and painting: foliage entered largely into works of art, for “foliated” was actually a term in art (hear, hear); and he believed the Commissioners, in encouraging these gardens, were bringing to their pupils at the Museums at Kensington that very foliage which they could study from Nature, and which was much better than anything of the kind in the shape of copies that could be presented to them (hear, hear). He should propose a vote of thanks to the Council, by way of approbation for what they had done, as he thought the time had come when the Society should relinquish the subject to the Council to carry it out to a conclusion, if they possibly could (hear, hear). This was the resolution he should propose:—“That this meeting approves of the steps already taken by the Council; authorises the negotia-

tion with the Royal Commissioners to be continued, and empowers the Council to proceed to raise the sum required for the construction of a garden at Kensington Gore; and, if the money should be obtained, to complete the arrangements."

The Duke of LEINSTER had great pleasure in seconding the resolution. He was at the last meeting and proposed the first resolution to the meeting, which had the effect of producing a most useful discussion. When he came to consider the locality of the proposed gardens, and the great object of having such a place within reach of so many people, and where every individual could go on such easy terms, he thought it was most important that that measure should be carried out without delay. With that feeling he should second the resolution.

Mr. GRISSELL hoped that the Council would give the subject the best consideration possible. He looked upon the proposal of the Commissioners, especially the last, as not so favourable, on account of that right of re-entry, should the Society not be able to pay anything. He thought, at the least, that the five years' forfeiture should not take effect until after the expiration of the first lease. He looked upon the conditions as very hard, and thought the Society should not be placed in such a position by the Commissioners (hear, hear). If it should so happen that the income should be only sufficient to pay the expenses, it would be very hard to have to pay the interest on the money borrowed by the Royal Commissioners.

The SECRETARY agreed with Mr. Grissell about the hardship of the right of re-entry, a clause which was not in the first terms, and he saw no reason why it should be in the second.

Mr. HOLMES GODSON said he was deputed by the Council to wait upon the Secretary of the Commissioners, in company with Mr. Dilke, and he did so. He must in justice say, that he found them open and candid; and he submitted to them that the terms in the lease would not be submitted to, either by the Fellows of the Society, or the public who found the money. Therefore, when it was proposed that the lease should terminate at the end of thirty-one years, they were reducing the value of a life membership, as many persons might live more than thirty-one years. That was a point which the Commissioners, some of whom were present, should understand. They proposed to spend £50,000, but the Commissioners did not tell them that they would allow the Society any share in the produce of the arcades, which would be erected and let out. If the Commissioners did make anything by the arcades, surely they would not—if they cleared £2,500 a-year that way—want the Society to pay £2,500 a-year for rent also. From the meeting of the Council yesterday he did not anticipate they would have more than £30,000 of the £50,000 to raise. With regard to the repayment of the £20,000 by the Commissioners of the Society's debentures at the end of thirty-one years, and the renewal of the lease for thirty-one years more, he thought that would be but fair. As one gentleman had said, what would be the use of the gardens to the Society unless they derived advantages from them for the benefit of horticulture? With respect to Chiswick, they could not tell what would be done until after the gardens at Kensington Gore had been erected. The terms were very good from the Duke of Devonshire; and he thought if they continued they would be able to pay their debts in four or five years. He should like to know what security they had from the Royal Commissioners about the re-entry?

The SECRETARY did not think so. With proper care, no doubt, much might be done; but when they only took £4000 or £5000, and spent £9000, that was not the way to get out of the difficulty at Chiswick. They had now, he believed, the means within their own hands, and he would advise them to keep so. Societies must do what any man would who meant to pay his way—keep within his income. Whether that scheme took or not, there would be the Horticultural Society in a more flourishing condition than it had been for the last fifteen years (hear, hear). With respect to the security, he held there was every security that bound one society in honour to another—every security that a society could give.

Mr. EDMONDS thought the horticulture of the British islands would be very much advanced, and so would the horticulture of the world, by the proposed gardens (hear, hear). Valuable plants would be introduced, and our vegetables would be very much improved. He had given his attention to it in the Council entirely with that view; he felt convinced throughout, and now more than ever, those results would follow.

In answer to a question from what source they would pay

the interest on the debenture until the gardens were opened, as they would not be ready for the next two years, the CHAIRMAN said that there would not be more than £20,000 till then. Of course they would have to trust to future success to make it up. They would be sure to have something behind on starting; but he looked upon the opening as a great spectacle that would very likely reimburse the arrears of interest.

Sir JOSEPH PAXTON, M.P., said he was not clearly informed as to the new arrangements. He thought the last proposal was very much on the balance side of the Commissioners. The Commissioners were desirous of doing something for the benefit of the public; and the Society was desirous of doing something for the benefit of horticulture (hear, hear). Unless it were shown that the arrangement was for the common interest of the Society and the public, the public would not lend the money. He would recommend that the right of re-entry after the five years' non-payment clause should be struck out. However, as to the question of security for the repayment of the debentures, when the Commissioners said that at the end of thirty-one years, if they did not choose to renew the lease, they would take the responsibility of £20,000 of the stock, if that were not security he did not know what was (hear, hear). As to the five consecutive years for re-possession by the Commissioners, he held that it needed no lawyer to tell them that, if they only paid one year's interest out of the five, they would be right enough. There was not much to be alarmed at in it after all; for they would be doing bad indeed not to be able to pay one year's rent in five years. He should move for a further adjournment of the meeting for a fortnight, to enable the Council to again communicate with the Commissioners.

Mr. G. N. HUNTER seconded the amendment.

The Duke of LEINSTER, as a landed proprietor, thought that the terms were most extraordinarily favourable to the Society. He had a good deal to do in making out leases, and that was his exclamation when he first saw the conditions.

Mr. GRISSELL would rather take the former terms than the second ones. He was of opinion that the forfeiture clause would prevent people lending the money.

The CHAIRMAN said, before putting the amendment he felt it important to state, as President, that whatever was done by the meeting the members of the Council only looked upon themselves as the delegates of the Society (hear, hear). The Council was not bound to accept the terms proposed to them. The meeting might rest assured that the interests of the Society would not be lost sight of whatever course was adopted. He looked upon the amendment for an adjournment as tantamount to what was called in Parliament, "That the bill be read this day six months." It was only by allowing a certain amount of discretion to the Council that matters of that nature could be carried out at all. They would take care that the objections that had been urged against the five years' re-entry clause should be properly attended to. With respect to the amendment of Sir Joseph Paxton, he (the Chairman) hoped they would be able to arrive at some compromise so as to avoid any further delay.

Sir JOSEPH PAXTON said, that on consideration of people going out of town before the end of a fortnight, he would consent to alter his amendment, so as to shorten the adjournment by one week,—let it be that day week.

Mr. BOHN said, the only difficulty seemed to be the insertion in the lease of this stringent forfeiture clause about the non-payment of the interest for five years consecutively. He was against postponing the meeting, and proposed that the trouble might be got over by inserting in the wording of the clause "any" interest instead of "the" interest.

Mr. COLE said the feeling of the meeting was against those frequent adjournments, and hoped the matter would be left, as suggested by the Chairman, in the hands of the Council.

Mr. DILKE, as one of the Royal Commissioners, reminded the meeting that the Commissioners were a very unwieldy body. It was difficult to get them together, and he did not think it possible it could be done in a week. Everybody was hurrying out of town now. People must take their holidays some time.

Mr. WOOD was also against a further adjournment.

The resolution was then put and carried unanimously.

Sir JOSEPH PAXTON reiterated his objections to the terms, and also the length of the lease, being only thirty-one years. Thirty years ago, he said, horticulture was in a very flourishing condition, and what would it be thirty-one years hence? (hear, hear). He strongly urged some additional arrangement with the Commissioners about it. He remembered perfectly well

that thirty-five years ago he was learning his profession, and he wanted to see horticulture properly protected in any terms that might be finally concluded (hear, hear). Seeing the feeling of the meeting was against an adjournment, he would withdraw his amendment, and submit the following as a substantive motion :—

“That the Council be instructed not to accept the clause about re-entering, in case of failing to pay interest for five years, and that in the event of the Commissioners cancelling the lease an equitable adjustment of mutual interests be made.”

Mr. CLUTTON seconded; and the motion was agreed to.

On the motion of the Duke of LEBNSTER, seconded by Mr. W. W. SAUNDERS, the Treasurer, the thanks of the meeting were voted to the noble Earl for presiding, and the meeting separated; several additional debentures being taken up and donations announced.

THE SCIENCE OF GARDENING.

(Continued from page 227.)

THE quantity of soluble matter obtainable from a soil at any one time is very small, seldom exceeding a one-thousandth part of its weight; and even pure vegetable mould, the *débris* of entirely putrefied plants, was found by Saussure to yield only one-eleventh of soluble matter. This mould was too rich for horticultural purposes, Peas and Beans grown in it being too luxuriant, and they were more productive in a soil containing only one-twentieth of organic constituents dissolvable by water. Small in amount, however, as are the soluble constituents of the most fertile soils, they are necessary for the vigorous vegetation of plants; for when a soil is deprived of those constituents by frequent washings with boiling water, it is much less fertile than before. Liebig and others have most illogically concluded, from the smallness of the soluble extract contained in a soil, that, therefore, it is of trivial importance; but they forget that, as fast as this extract is removed from a soil by the roots of the crop, it is generated again by the decomposition of the animal and vegetable remains contained by the soil. This is one reason why fallowing is beneficial, the more easily decomposing matters have been exhausted by successive crops; and by a year's rest, and exposure to the putrefactive agency of the air, the more stubborn and more slowly decomposing organic remains have time to resolve into and accumulate soluble compounds in the soil.

The mucilaginous and saccharine matters formed by manures during their decomposition in the soil are unquestionably absorbed by the roots along with its moisture; for if the whole of the branches of a Vine or Maple be cut away close to the surface of the ground, it will continue to bleed for many days, and to the last its sap will continue to afford the same amount of those matters. But their saps, and that of all plants as yet subjected to analysis, abound with carbonic acid gas; and there is no doubt that decomposing organic manures are very largely beneficial to plants by affording that gas to their roots, a subject which will be further considered when we are examining the phenomena attendant upon vegetable decomposition.

Of the less general manures, which benefit plants by entering into their composition, a few words will suffice. Sulphate of lime (gypsum) is a component of Clover, Lucerne, Turnips, &c.; hence it has been applied with benefit to these crops on such soils as did not already contain it. Bones, broken small, have lately become a very general manure; their benefit, which is very permanent, is easily accounted for. The bones of oxen contain about fifty per cent. of gelatine, which is soluble in water, and rapidly becomes putrescent; the remainder is chiefly phosphate and carbonate of lime, salts which are components of Wheat, Rye, Barley, Oats, Peas, Beans, Vines, Cucumbers, Potatoes, Garlic, Onions, Truffles, &c. Common salt, also, is employed as a manure, and is beneficial, partly in consequence of entering into the constitution of plants.

The day has long passed when it was disputed whether saline bodies are promotive of vegetable growth. It is now determined that some plants will not even live without the means of procuring certain salts. Borage, the Nettle, and Parietaria will not exist except where nitrate of potash is in the soil; Turnips, Lucerne, and some other plants will not succeed where there is no sulphate of lime. These are facts that have silenced disputation. Still there are found persons who maintain that salts are not essential parts of a plant's structure: they assert that such bodies are beneficial to a plant by absorbing moisture to the

vicinity of its roots; or by improving the staple of the soil; or by some other secondary mode. This, however, is refuted by the fact that salts enter as intimately into the constitution of plants as do phosphate of lime into that of bones and carbonate of lime into that of egg-shells. They are part of their very fabric, universally present, remaining after the longest washing, and to be found in the ashes of all and any of their parts, when subjected to incineration. Thus Sanssurre observes, that the phosphate of lime is *universally* present in plants.—(*Sur la Végét.*, c. 8, s. 4.) The sap of all trees contains acetate of potash; Beetroot contains malate and oxalate of potash, ammonia, and lime; Rhubarb, oxalate of potash and lime; Horseradish, sulphur; Asparagus, super-malates, chlorides, acetates, and phosphates of potash and lime; Potatoes, magnesia, citrates, and phosphates of potash and lime; Jerusalem Artichoke, citrate, malate, sulphate, chloride, and phosphate of potash; Garlic, sulphate of potash, magnesia, and phosphate of lime; Geraniums, tartrate of lime, phosphates of lime, and magnesia; Peas, phosphate of lime; Kidney Beans, phosphate of lime and potash; Oranges, carbonate, sulphate, and muriate of potash; Apples and Pears, malate of potash; Grapes, tartrate of lime; Capsicums, citrate, muriate, and phosphate of potash; Oak, carbonate of potash; and the Lilac, nitrate of potash. Let no one fancy that the salts are a very trivial portion of the fabric of plants. In the Capsicum, they constitute one-tenth of its fruit; of Carrot juice, one-hundredth; of Rhubarb, one-eleventh; of Potatoes, one-twentieth; whilst of the seed of the *Lithospermum officinale* they actually form more than one-half. Their constituents being as follows :—

Carbonate of lime	43.7
Silica	16.5
Vegetable matter, phosphate of lime, &c.	39.8
	100.0

These amounts of earthy saline matters are nearly as much as exist in human bones; but if we turn to the marrow, it only contains one-twentieth of saline matters; the blood only one-hundredth; muscle only one-thirty-fourth; yet no one will argue that these saline constituents, though smaller than those in vegetables, are trivial and unimportant.

Having shown that saline compounds enter universally into the composition of plants, let us next examine more in detail some of the salts which have been proved to be most beneficial as manures.

Foremost among these is *superphosphate of lime*, prepared by the addition of sulphuric acid (oil of vitriol) to crushed bones. It is more useful as a manure than bones, because it is more soluble in water. If we bury a bone it will remain almost unaltered for years; but if we break it into small pieces it decays much sooner; and if put round the roots of Cabbages, will soon make them grow more fine and vigorously. Cabbages, however, are not the only garden vegetables benefited by bone manure; for, as we have just said, phosphate of lime is one of the most constant constituents of all plants. Of this phosphate, therefore, the soil is deprived by every crop it bears; and to restore this phosphate to the soil is an object with every cultivator. It was long since shown by chemists that phosphate of lime is the chief ingredient in all bones, and, consequently, these by degrees have become one of the most extensively used manures.

In every 100 lbs. of sheeps' bones there are 70 lbs. of phosphate of lime; in 100 lbs. of horses' bones, sixty eight of that phosphate; and in the same quantity of ox bones, 55 lbs.

Now, as phosphate of lime is insoluble in water, and even bone dust is slow in decaying, it was suggested that by dissolving it in a strong acid, superphosphate of lime, a substance soluble in water, would be formed, and also all the other constituents of the bone be presented to the roots of the crop in a most available form. This process is said to have been first adopted by Mr. Fleming, of Borrochan, N.B., in the year 1841. He employed muriatic acid (spirit of salt) to dissolve the bones, and the result of his experiments, per acre, on Turnips and Potatoes, was as follows :—

	Swede Turnips.		Potatoes.	
	ton.	cwt.	ton.	cwt.
Bones (16 tons, no acid)	14	17	9	15
Bones (10 tons, with acid)	18	11	12	15

Subsequent experiments have demonstrated that oil of vitriol (sulphuric acid) can be used much more advantageously for dissolving bones than the muriatic acid, and for reasons thus epitomised by Mr. W. C. Spooner, in his "Treatise on Manures :"—"Sulphuric acid is stronger, cheaper, has a greater specific

gravity, and, therefore, is not so bulky; and contains much less water. On mixing it with water a much higher temperature is obtained, which conduces to the dissolving of the bones. But, above all, we find that in the trials which have been made, bones dissolved in muriatic acid have been found somewhat less beneficial than others dissolved in sulphuric acid." Mr. Spooner's conclusions, after lengthened experience, are—

1. That superphosphate of lime is the essential manure for Turnips, and particularly for Swedes. (We can add, that it is most excellent for every kind of Cabbage, Broccoli, and Cauliflower.) That with it alone a good crop can be raised; but without it the Turnip will not thrive, however rich the manure may otherwise be.

2. In preparing the mixture, the bones should be in as fine a state as possible.

3. That sulphuric acid, from its greater strength and cheapness, is preferable to muriatic acid.

4. That water, in the proportion of one-half the weight of the acid, should be first sprinkled over the bones.

5. The proportion of sulphuric acid most economical to employ should not be less than one-third, nor more than one-half the weight of the bones, and that probably the medium between these two quantities is most advantageous.

6. That the mixture can be applied either with the addition of a considerable quantity of water, or with ashes, by means of an ordinary drill. That though mixed with water it may be more speedy in its effects, yet when mixed with ashes it can be more conveniently applied, and has the advantage of admitting the addition of a large quantity of ashes.

7. That vitriolized bones may be used either alone or with other manures; and that when the latter are at hand, it is more advantageous to use the former in combination with them.

Mr. Spooner remarks that, in his experiments with superphosphate of lime applied at the time of sowing seeds, these invariably sprouted more quickly than other seeds sown without the addition of the phosphate. It seems to have the power generally of hastening the progress of vegetation; and the following from Mr. R. White shows its effect upon the Rose tree.

"In the autumn of 1845 I transplanted about twenty Rose trees; and in consequence of seeing this substance mentioned as one to be used with advantage in such a case, I tried the experiment on eight out of that number, by sprinkling about a handful on and about the roots at the time of planting. Early in March of this year the difference was very perceptible; the eight plants in question were in leaf, and quite as forward as those which had not been removed, while the remainder (with one exception) had not then started into growth. I think this may be taken as a proof that superphosphate of lime has a beneficial influence in causing the more ready formation of roots."—(*Gardeners' Chronicle*.)

Bone manure, whether merely ground bones or those dissolved in sulphuric acid, is not only beneficial to Cabbages and Turnips, but to all garden crops and flowers. We have noticed very great benefits ourselves from applying it to Peas, Beans, Asparagus, and Strawberries.

Mr. Cuthbert Johnson, in his essay "On the Uses of Bones as a Manure," observes, "There is yet another source from whence the phosphate of lime might be obtained in large quantities for the use of the farmer, viz., the fossil bones, or native phosphate of lime, which is found in various districts of this country in very considerable quantities, and would only require crushing or powdering to render it nearly as useful to the farmer as the recent bones; for that the cartilage, or oily matter of the bone, does not constitute the chief fertilising quality is shown by the fact, that the farmers who use bone dust will as readily employ that which has first been used, and all its fatty portion extracted by the preparers of cart-grease, as they will the unused fresh bones. The mineral substance called the apatite, found in the Cornish tin mines, is nothing but phosphate of lime; 100 parts being composed of—

Phosphoric acid	45
Lime	55

"The phosphate of lime is also found in many parts of the north of England, in Hungary, and in immense beds in Spanish Estremadura, where it is said to be so common in many places, that the peasants make their walls and fences of it. One hundred parts of this substance, called by mineralogists the phosphorite, contain—

Phosphoric acid and lime	93.0
Carbonate acid	1.0

Muriatic acid	0.5
Fluoric acid	2.5
Silica	2.0
Oxide of iron	1.0

"The inquiry as to the quantity in which this native phosphate of Spain exists, having engaged the attention of the Royal Agricultural Society of England, Dr. Daubeny and Captain Widdington were induced, in 1845, to make a voyage into Spain to examine it, and they have since published the result of their inquiries.—(*Journal Royal Agricultural Society*, vol. v., p. 406.) They found the phosphorite rock existing in large masses a short distance from Logroson, a considerable village about seven Spanish leagues to the south-east of Truxillo, in Estremadura. It forms 'a rock varying from seven to sixteen feet in breadth, traceable for nearly two miles along the ground, and extending into the earth to a great, though as yet an unascertained, depth.' Some specimens, analysed by these highly usefully employed voyagers, consisted per cent. of—

Silica	1.70
Peroxide of iron	3.15
Fluoride of calcium (fluor spar)	14.00
Phosphate of lime	81.15

How much phosphate of lime is required by our common garden crops, may be estimated by the following results of some of the experiments of various chemists:—

100,000 lbs. of	Phosphoric acid.	Lime.
	lbs.	lbs.
Potatoes contain	40	33
Beans "	292	165
Peas "	190	58
Cabbage "	436	1822
Beet "	167	285
Turnips "	73	127
Carrots "	395	505

Even the most delicate of our flowering stove plants contain phosphate of lime; for in 10,000 grains of a *Catasetum* bulb Mr. Solly found 183 grains of earthy phosphates, and 222 grains in a bulb of a *Bletia*.—J.

(To be continued.)

A GOSSIP ABOUT THE BEGONIA.

IN the whole vegetable world there is not a single family which repays the care and attention of the cultivator so well as the Begonia. There is not a single genus which combines so many good qualities; not one which, as our German neighbours would say, is so "grateful" for the pains bestowed upon it. The facility with which they can be propagated (for anybody can strike a Begonia cutting), their cheapness, generally speaking, and the simplicity of the treatment they require, render them general favourites. To write a long essay upon their cultivation would be simply an absurdity—almost amounting to an insult to the reader. All they require is a good, rich, open soil, and a warm, moist place to start them in—they do not care if it is a hotbed or a stove—and a snug greenhouse in which to flower. Give them these and they are satisfied—at least the greater part are so.

Some 350 species are known to botanists, but only about a third of the best of them are in cultivation. Some of these are remarkable for their graceful habit, such as *B. fuchsoides* and *B. Putziesii*; some for their delicious fragrance, as *B. odorata*; some for the time they remain in flower, opening one cluster after another continuously. I have known one plant of *B. nitida* which had two or three cymes of flowers *always* open, and sometimes more, for upwards of three years; and, for aught I know to the contrary, it may be in flower to this day. One cluster always remained till a new one was ready to take its place. Some species, like *B. manicata* and *B. urophylla*, produce a mass of flowers at one time; and as that time is early in the spring, these plants are very valuable for decorative purposes, or for cutting from for bouquets.

B. octopetala, which was one of the best in the whole family for winter blooming, has, I fear, been lost; at any rate I have inquired for it in all the London nurseries and public gardens without success. It may, perhaps, still be grown in some private garden; and if any person has really got it he would do good service to the country by placing it in the hands of some one who would propagate it to the utmost. It is a tuberous-rooted herbaceous species (like the old *discolor* or the splendid *diversifolia*);

its flowers are pure white, large as an Anemone—larger, in fact, than any other species, and having, as the name implies, eight petals. It is a native of Peru, and was introduced some twenty years ago.

But the Begonia has other recommendations of which we have not yet spoken—the exquisite beauty of its variegated foliage, and the facility with which it can be hybridised. It is only about three years since *Rex* astonished the world, and now it is to be met with in almost every garden you visit, either in England or on the Continent. It is a market plant, purchasable for a few pence in all large cities from Paris to Moscow, from London to St. Petersburg. By crossing, it has already given rise to an almost innumerable progeny of vegetable genus. To develop the beauty of these variegated Begonias to the utmost, three things are necessary—heat, moisture, and shading. Let us mention a few of the best of this class.

B. splendida, young leaves like crimson velvet, but the plant is apt to become ugly as it reaches a large size. The variety called *B. splendida argentea* is not open to this accusation. It is really a magnificent thing, a pink tinge shining through the silver of the foliage.

B. Griffithii (still called *pieta* in some gardens), is one of my greatest favourites, the various zones of colour are so beautifully shaded the one into the other.

B. xanthia Reichenheimii, green bands follow the principal veins, the spaces between pure white.

B. xanthia lazuli, leaves copper coloured, shining with a beautiful metallic lustre.

B. xanthia picta-folia, leaves copper coloured, with distinct large white blotches.

B. Queen Victoria, raised by Makay, the Belgian nurseryman, very delicate; the leaf milky-white except a margin of green dots, and a few about the centre.

B. Prince Troubetzkoy, apparently a cross from *laciniata*, very distinct, the leaves dark in the centre, pea-green towards the margin; footstalks and underside reddish.

B. argentea, the upper surface of the leaf quite white; exceedingly delicate.

B. regina, only one step removed from *Rex*, the bands of colour being rather more shaded off. In the same strain are *Miranda*, *Madame Wagner*, and *argentea guttata*, which are scarcely distinct enough from each other.

B. amabilis, the bright banded leaves very glossy and shining.

There are many others which have been raised more recently, of which the merits are less known, as only small plants are generally met with. Those most highly spoken of are *nebulosa*, *Ajax*, *nobilis*, *Victoria* (different from *Queen Victoria*), *grandis*, and others.—KARL.

ALOES versus APHIS.

THE aphides are evidently in possession of the battle-field. I would recommend the vanquished to try a lather of soft soap, of sufficient consistency to clasp round the entire column of the enemy, and stick upon them.

Any belligerent had better experimentalise with it before using it to any extent; as, if too strong, it kills the end of the shoot, otherwise only the insects.

I took the idea from Millar years ago, who recommends soft soap for the American bug.

It should be just dropped on the tip of the shoot with a feather.—K.

[Try Gishurst Compound—2 ozs. to a gallon of water, and repeat the application.]

THE HILDERSHEIM ROSE.

THE following is an extract from a letter received by Mr. Rivers from a Leipsic correspondent:—

“Respecting the Hildersheim Rose bush, I was sorry to hear you were already over the corrections of your Rose book, as the material lately forwarded me by a Hildersheim bookseller is very interesting, though, as most German things, tremendously long and ponderous. The pith of the two poems and four pages (written) of descriptive matter reads thus:—When Charlemagne had conquered the territory belonging to the original Saxons, several foreign potentates hastened to show him marks of esteem and respect, and amongst others the schoolboy’s old friend,

Master Haroun Al Raschid (whom my poet designates Kaliph of the Persians on the Euphrates), who, as a slight token of his admiration, made Charlemagne present of the land of Canaan, and as a symbol of his authority, forwarded to him by the ambassador a purple banner, on which were embroidered the arms of Canaan—six roses on a golden field. Charlemagne, however, instead of being polite and thankful for Haroun’s friendly feelings, would not accept of Canaan, asserting that he was not desirous of merely increasing his possessions, but more especially of re-establishing the faith, and rendering his subjects happy. What happened to the banner, or the ambassador, the poet has forgotten to say, but he closes his lay by mentioning that Charlemagne planted a Rose on the spot (ground) to commemorate the event, and to prove that this ground was always to be kept sacred and holy.

“No efforts seem, however, to have been made to carry out Charlemagne’s intentions; for my second poem informs us that Louis the Pious at a later period came to the district of Hildersheim on a hunting excursion, and after having caught and slain his wild boars and other game, ordered mass to be held in the open air, at which all his hunting retinue were present. The officiating priest on returning to his habitation, and just as the court were commencing their repast, missed the holy image (most likely he means here the cross); and after searching in vain, proceeded on his way back to the place where the open-air mass had been held. It was becoming dark, and in his hurry and fear he seems to have partly lost his way; when lo! his eye lighted upon the cross resting on the branches of a wild Rose bush. He immediately hastened forward to regain it; when, wonder of wonders, the cross stuck to the Rose bush, and eluded his grasp! After several ineffectual clutches, the priest felt sure that some heavenly power had been interposed, and he (the priest) therefore forthwith ran to the court, and roused up the pious Louis to visit the wonderful sight. The whole court rushed forth, and on approaching the Rose bush, and without daring to touch the cross, fell on their knees and gave thanks to God for His greatness. Moreover, Louis the Pious ordered the present cathedral of Hildersheim to be built over the same Rose bush, and ever since the organ has borne the burthen of the Almighty’s praises, and the choir upheld the memory of the pious Louis’ name.

“The two preceding legends are referred to by many German writers; and the second one is pointed out by the brothers Grimm and Dittmar, as also several other notabilities. Be this, however, as it may, Dr. Grashof, of Hildersheim, adds the following remarks:—

“The roots of the Rose tree are buried in a sort of coffin-shaped vault under the middle altar of the crypt, which said crypt is proved by known documents to have been built in the year 818, and to have survived the burning of the other parts of the Hildersheim Cathedral on the 21st of January, 1013, and the 23rd of March, 1046. It is remarkable that the chronicles of the town and chapter make no mention of any harm having befallen this Rose tree, which for centuries has been considered one of the lions of the district. The vault itself is open to the entrance of wet from the outside, and this is put down as a proof that the Rose bush could not have been planted after the cathedral was built.

“The trunk of the Rose tree, eleven inches in diameter, is conducted through an opening in the wall (the wall being five feet thick), and then reaches outside some inches above the surface of the ground, from whence two older branches (almost two inches in diameter), and three younger arms spread out, and with their twigs and leaves cover a space of twenty feet in height, and twenty-four feet in width, being arranged on to a sort of iron railing on the eastern round side of the vault.

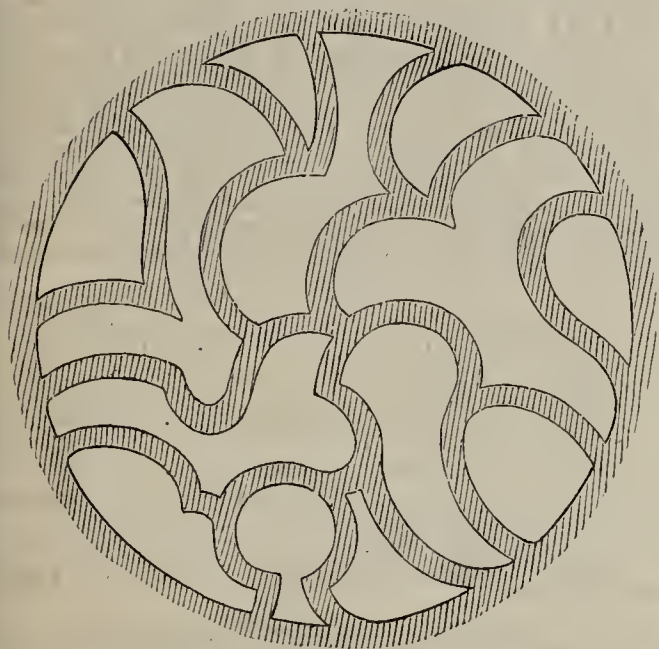
“This Rose tree has been an object of especial attention to the chapter from the erection of the cathedral; and botanists attribute its present size to the fact of its being sheltered from frost and storm amongst the different buildings and cloisters of the cathedral, and from human touch by trellis work. Bishop Hepilo, 1054—1079, had the Rose tree carefully spread out on the outer wall, built by him, and placed in the archives a record of this, as also a description of the massive vault built under the high altar in the crypt for the reception of the roots. The opening in the wall through which the trunk passes was made about 1120, when the former plain wall was rounded. This tree was in such esteem in the thirteenth century, that a statue of the Virgin Mary was commenced (but not finished) of pieces of the stem; and before this, which was destined for the high altar itself, the vassals and servants of the bishopric were obliged to pay homage to the newly-endowed prelate.”

"You, as a judge of Roses, can best determine whether the assertion that this Rose bush has existed from the commencement of the bishopric of Hildersheim—therefore, upwards of a thousand years—is probable. A view of the Rose tree shall be forwarded in next case to Mr. Hagger. It is rather a curious lithograph, but it gives you an idea of the position of the trunk and branches."

HOLCUS SACCHARATUS.

I SOWED about twenty yards of *Holcus saccharatus* in the middle of May, on a south border which is partially shaded by trees; and I regret to say that the failure in my case is still more complete than that of your correspondent "W. W. W." After a careful examination of the patch of ground, I failed to detect a single plant of the Cane; and, despairing of its making its appearance, I have dug it up, and put in a more useful vegetable (Cabbage).—GEORGE YULE, *Park Cottage, Swinton.*

FORMING A ROSERY.



[This roserie is sixteen yards in diameter; has a clear space thirty yards wide around it; and is in a hollow, so as to be well seen.]

HAVING for some time been a reader of THE COTTAGE GARDENER, and having seen a wish expressed about "something about Roses," I, although I am not a gardener in the strict sense of the term, have something to tell how a roserie may be had in a little time and at a small cost. I purchased 1700 or 1800 Manetti stocks at a sale this year in February at a low figure (7s. for the whole), and they were good ones for my purpose. I grafted 580 of them over the fireside in March—plain splice-grafting, without any tongue or slit—(grafts about five inches long), and put them close down to the roots of the stocks, tied them with coarse knitting cotton, and planted them with the junction about three inches below the surface in the beds, of which I have sent you a tracing. I also grafted 340 more as a reserve to fill up what failures there might be in the beds. Now for the result. It was a bad season here; cold first, and then a long continuance of drought. Now mind, they were never watered nor had anything done to them, except taking off suckers, but once when they were well watered three days before rain came.

In the beds there are 440 growing; and 365 are either in bloom or are showing buds for it. The 75 not showing bloom are mainly Mosses or Hybrid Chinas: the rest are Hybrid Perpetuals. In the reserve lot 280 are living, most of them in bloom; so that next year, if all be well, I shall have the whole beds stocked at a very small cost indeed. The advantages of the underground grafting, as I call it, are—that you can work them better when you have them in your hand, and that the Manetti is under ground altogether, which it is now agreed it is best to be.

I have not sent you this for any self-praising purpose, but to show that the Rose may be propagated easily and at a small cost, with very little extra trouble; and I am sure any one who tries and succeeds as I have done must feel great pleasure in seeing them.—W. P. RUDDOCK, *Manager of the York Cemetery.*

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 213.)

PEARS.

Abbé Mongein. See *Uvedale's St. Germain.*
Abundance. See *Amour.*

ACHAN (*Black Achan; Black Bess; Red Achan; Winter Beurré*).—Fruit medium sized, obovate, flattened towards the eye. Skin varying from pale greenish-yellow, to dark greyish-green, and covered on one side with dull brownish-red. Eye open, set in a slightly depressed basin. Stalk about an inch long. Flesh tender, rich, melting, sugary, and highly perfumed. Ripe in November.

Though an excellent Scotch dessert pear, this is perfectly worthless in the south of England.

Adam's Flesh. See *Chair à Dames.*
Adèle de St. Denis. See *Baronne de Mello.*
Ah! Mon Dieu. See *Amour.*
Albert. See *Beurré d'Amanlis.*

ALBERTINE.—Fruit above medium size, Doyenné shaped. Skin smooth and shining, of a pale lemon colour, strewed with very large russet dots, and with a faint blush of red next the sun. Eye half open, set in a shallow depression. Stalk short and stout. Flesh very tender, melting, and buttery, piquant and perfumed. A first-rate pear, with a slight musky flavour. Ripe in September and October.

ALEXANDRE BIVORT.—Fruit rather below medium size, obovate. Skin shining, clear yellow, and covered with pale brown and green dots. Stalk woody, half an inch to three-quarters long. Flesh white, with a reddish tinge, buttery, melting, and very juicy, richly flavoured, and with a high aroma. A first-rate pear. Ripe in the end of December and continues till February. The tree has a bushy habit of growth.

ALEXANDRE LAMBRÉ.—Fruit medium sized, round or roundish-oval, uneven in its outline. Skin smooth, greenish-yellow, with sometimes a tinge of red next the sun, and considerably covered with lines and dots of russet. Stalk an inch long, and thick. Flesh white, half-melting, very juicy, sweet, and aromatic. December till February.

ALEXANDRINA.—A medium sized, early, melting pear, which succeeds well on the quince, perfectly hardy, and forming a handsome pyramid. Ripe in September.—*Riv. Cat.*

ALTHORP CRASANNE.—Medium size, roundish-obovate, narrowing rather towards the eye than the stalk. Skin pale green, dotted with russet, brownish next the sun. Stalk an inch and a half long, curved, slender, and moderately depressed. Eye with the segments much divided, set in a slightly plaited shallow basin. Flesh white, buttery, juicy, rich, and perfumed. October to November. A first-rate pear in some situations.

Ambrée Gris. See *Ambrette d'Hiver.*
Ambrette. See *Ambrette d'Hiver.*
Ambrette Grise. See *Ambrette d'Hiver.*

AMBRETTE D'HIVER (*Ambrée Gris; Ambrette; Ambrette Grise; Belle Gabrielle; Trompe Valet*).—Fruit medium sized, roundish, almost oval. Skin pale green, or greenish-grey. Eye small and open, with flat and reflexed seg-

ments, and set in a shallow basin. Stalk about an inch long, stout, and inserted in a small cavity. Flesh white when grown on the quince, and tinged with green when grown on the pear stock; rich, melting, and juicy, with an agreeable musky perfume, supposed to resemble that of Amberggris, and from which its name is derived. A very good dessert pear; in season from November to January.

AMBROSIA (*Early Beurré*).—Fruit medium sized, roundish, depressed, and rather more swollen on one side than the other. Skin greenish-yellow, covered with grey specks. Eye small, closed with short segments, and set in a wide and rather deep basin. Stalk long and slender, rather deeply inserted. Flesh tender, melting, juicy, and highly perfumed. Ripe in September.

Amiral. See *Arbre Courbé*.

AMIRÉ JOANNET (*Joannet; Petit St. Jean; St. Jean; Early Sugar; Harvest Pear*).—Fruit small, regularly pyriform. Skin very smooth, at first of a pale greenish-yellow colour, which changes as it ripens to deep waxen yellow, and with a tinge of red next the sun. Eye open, with stout, erect segments, placed even with the surface. Stalk an inch and a half to an inch and three quarters long, stout and fleshy at the insertion. Flesh white, tender, juicy, sugary, and pleasantly flavoured, but soon becomes mealy.

One of the earliest summer pears. Ripe early in July, and requires to be gathered as it is changing to yellow.

Amiré Roux. See *Summer Archduke*.

Amoselle. See *Bergamotte d'Hollande*.

AMOUR (*Abondance; Ah! Mon Dieu; Belle Fertile*).—Fruit small and obovate. Skin pale yellow or citron in the shade, and fine red covered with darker red dots on the side next the sun. Eye small, scarcely at all depressed, surrounded with a few plaits. Stalk an inch long, curved, and inserted in a swollen cavity. Flesh white, tender, and very juicy, with a rich sugary flavour. Ripens in succession from September onwards, but will not keep longer than a fortnight after being ripe.

ANANAS (*Ananas d'Été*).—Fruit large, obtuse pyriform. Skin yellowish-green, almost entirely covered with rough brown russety dots, and with a brownish tinge next the sun. Eye open, with short stiff segments, and set in a shallow basin. Stalk about an inch and a half long, scarcely at all depressed, but generally with a swelling on one side of it. Flesh delicate, melting, buttery, with a pleasantly-perfumed flavour. Ripe in September.

The tree succeeds well as a standard, and is a good bearer.

ANGÉLIQUE DE BORDEAUX (*Franc-réal Gros; St. Martial*).—Fruit medium sized, obtuse pyriform. Skin smooth, yellowish-green in the shade and pale brownish-red next the sun; strewn with brown dots. Eye small, set in a narrow and rather shallow basin. Stalk thick, an inch and a half long, fleshy at its insertion. Flesh tender, buttery, juicy, and sugary.

An excellent dessert pear from January to April; but to have it in perfection late in the season it requires to be grown against a wall in a deep, rich soil.

Angleterre d'Hiver. See *Bellissime d'Hiver*.

Angoise. See *Winter Bon Chrétien*.

Angora. See *Uvedale's St. Germain*.

ARBRE COURBÉ (*Amiral; Colmar Charnay*).—Fruit above medium size, oval pyriform. Skin pale green, mottled and dotted with pale brown-russet. Eye open, set in a broad, shallow basin. Stalk three quarters to an inch in length, and stout. Flesh greenish-white, half buttery, juicy, and somewhat astringent. October and November. The tree has crooked branches.

Arbre Superbe. See *Fondante d'Automne*.

Archduke d'Été. See *Summer Archduke*.

Arteloire. See *St. Germain*.

ASTON TOWN.—Below medium size, roundish-turbinate.

Skin greenish-white, thickly dotted with russet; rough, like a Crasanne. Stalk an inch and a half long, straight and slender, inserted without any cavity. Eye small, nearly closed, and in a very shallow basin. Flesh yellowish-white, buttery, perfumed, and high flavoured.

A dessert pear of first-rate quality. Ripe in the end of October and beginning of November. The tree is a vigorous grower, attains a very large size, and bears abundantly.

D'Auch. See *Colmar*.

Auguste Benoît. See *Beurré Benoît*.

Austrasic. See *Jamiette*.

(To be continued.)

QUERIES AND ANSWERS.

BRIDGNORTH SPRING WATER.

"I should feel obliged if you will, in your next number, state your opinion of the quality of our water, which is supplied to our town from a spring by an engine. The analysis of it was made in London; and I find my plants, now my supply of rain water is exhausted, are much injured, and some quite destroyed by its use. I suspect that the quantity of salt is the cause; if so, by what way can I counteract its operation on their roots and foliage? I have a small greenhouse and cultivate a few choice things for my amusement, and am sadly annoyed by their miserable appearance. I have had Camellias, Eugenias, and even common Rhododendrons, completely killed by it, with quantities of choice annuals, &c. The water itself is very transparent and not bad to taste. The following are its saline component parts:—

	Grains per gall.
Carbonate of lime	10.5
Sulphate of lime	3.1
Carbonate of magnesia	4.1
Chloride of sodium	29.2
Silica, iron, alumina, and phosphates	1.1
Organic matter	5.8
Solid residue obtained by evaporation	53.1
	Degrees.
Hardness before boiling	17
„ after boiling	12
After the addition of lime-water	10½

—G. HANBURY."

[Such water is certainly not adapted for watering plants. It is, in fact, a weak saline water. The Malvern waters only contain five grains of solid contents per gallon, and those of Thetford fifteen grains. We do not know any remedy; but to avoid the necessity for using such water, have a well sunk capable of holding 1500 gallons. Have this rendered water-tight, and let all the rain-fall of your house pass into it. Have a similar well for all your house-sewage, and the two will render you independent of the spring-water.]

HEATING AND USING A SMALL GLAZED HOUSE.

"I have erected a glass house of the following dimensions:—28 feet long and 22 feet broad. I have a slate shelf the whole length for pots. Underneath I propose to force Rhubarb or make Mushroom-beds, and have four young Vines on the outside border. I have no heat; but I have a fire-place and a chimney for a flue to run into. Will you kindly instruct me how to proceed, as I know little or nothing of greenhouse culture?"—A. F. WATKIN.

[In your circumstances we would not only advise you to read "Greenhouses for the Many," but to study until you master therein all the simplicities of culture and general management given in "Window-gardening for the Many;" for after all, from what we gather from your description, your house is much the same as a huge window. In these days of greenhouse building, and to be appropriated to so many purposes, few persons would think of making the half of the roof of opaque slate, more especially as rough plate would not have cost a great deal more. As a mere conservatory for plants, and to incur little expense for heating, such a roof will even be better than glass; but not at all equal when it is desired such a house should look gay and lovely at all seasons. We are also left in ignorance of the means of deciding of the

fitness of such a house for the different purposes mentioned, as we know nothing of the height or of the internal arrangements. If the glass roof is rather flat, and consequently the back wall rather shaded, then we would recommend covering it with plants of the *Cissus antarctica*, or something of that kind that would always be green. If the glass roof is so steep as to throw a good amount of light against the back wall, then Camellias would flourish there, if turned out as good-sized plants. They, or *Acacia armata*, would flourish at the two ends of the house. Vines would do on the glass roof; and the Passion Flowers *cœrulea* and *cœrulea racemosa* might be introduced between them: but then you must expect the house to be shaded for the plants in its centre. We do not quite understand about the slate shelf. Is it round the front of the house? or is it a platform in its centre? If the former, there will be little room for Mushrooms beneath it. If the latter, there will be plenty room for such a purpose. If the latter, however, if you tried Figs and Peaches, they would require to be in pots on that platform. If the former, you could have plants on that front shelf, and have Figs and Peaches either in tubs or planted out in the centre of the house; but the success of these will greatly depend on not covering the glass roof too thickly with vines or anything else. Sunlight is essential to fruiting either Peaches or Figs well. Much has lately been said about flues, and nothing could well be added. Did we wish to make the most of such a house in winter for Sea-kale, Mushrooms, and Rhubarb, we would take the flue close to or through the chamber in which we grew such things; and if the latter, have openings to let the heated air into the house as well. Were it not for the appearance, there might be good Mushroom-beds on the floor at the back of the house under the opaque roof, which we should expect to yield crops from November to the middle of April; by the latter time the heat under such circumstances would be getting rather strong from sun alone.]

CLIANTHUS PUNICEUS AND MITRARIA COCCINEA.

"Will you inform me if *Clianthus puniceus* and *Mitraria coccinea* will do plunged in a north border, and their stems brought into the greenhouse to cover the lower part of rafters?"—S. M., Manchester.

[We have no faith in plants doing well under such circumstances. If the roots were in a south border, mulched in summer, and thoroughly protected from frost in winter, we should have more hopes of success. The *Clianthus* is not first-rate for a rafter, unless great care is taken to keep down red spider.]

MELON, FIG, AND GRAPE CULTURE.

"I have three frames of Melons which have made strong growth and look healthy, but have not set but one fruit in each frame. They are growing on a dung-bed. They show fruit at several joints, but the fruit turns off yellow. One frame has not shown any, but the one that has set. I have some growing under a large frame without heat, showing fruit, but none set. It is the *Scarlet-fleshed* Melon. Do you think I shall get any fruit without bottom heat? I saw a large frame of Melons some time ago with eight large fruit without bottom heat. I believe they were the *Bromham Hall* variety.

"I have a Fig tree on a south wall, making strong wood but no appearance of fruit; the young wood is rather long. Is it too late to pinch these back?"

"What heat do you consider will suit Grapes when swelling? Do they require very much air?"—T. H. JORDAN.

[1. In such seasons as this, Melons will require little or nothing in the way of bottom heat, from the middle of June to the end of August, provided the water you use is not below 80°. Before and after that period a little bottom heat would be useful, because the heat in the soil, especially in cold cloudy weather, would otherwise get too low to secure healthy growth. We have put plants at the end of May in cold pits and frames, and scarcely ever had better crops; but the fruit was gathered by the beginning of September, and advantage was taken of the heat, as well as of the light of the sun.

2. If you allow one fruit to swell on a Melon plant before more are set, it is very difficult to get more to set on that plant. We should prefer taking the one fruit away, in order to set from three to half a dozen at once. We are presuming you have only one plant in a light.

3. In order to set Melon fruit freely, you should have

watered the plants a week or so before the flowers are expected to open, so as to give vigour to the plants. Stop all the lateral shoots a joint before the fruit; fertilise the young fruit in the usual way, and give all the sunlight and air possible under the circumstances, keeping not only the atmosphere of the pit, but the surface of the bed as dry as possible. If the plant show any signs of suffering from dryness, make holes in which to pour the water, fill them up at top, and keep the surface dry. We presume your failures are owing to excessive growth, want of stopping, and extra moisture, especially at the surface, in conjunction with too little air, or a close atmosphere at night, in which your young fruit are damped or parboiled.

4. We have little faith in stopping Fig-tree shoots under such circumstances. No stopping will give you fruit that will ripen this season. Thin out the wood well; retain the primest and middle sized; lay it in full length, and let the sun shine on its leaves. If extra luxuriant, lift or cut the roots in September. If these shoots show young fruit in autumn, rub, or rather cut, off all bigger than Marrow Peas; protect from frost in winter; and the smaller fruit, and those that will come early next spring from the axils of the present leaves, but before the leaves show much, will ripen with you next autumn.

5. Grapes swelling will do very well with from 68° to 90° during the day, and from 58° to 70° at night. The more air during the day—especially at the top of the house—the better. If these conditions are maintained—and we should like never to take away all the air at night until we were threatened with frost—Grapes in a greenhouse will do in a lower temperature, because they will not have had extra excitement.]

GISHURST COMPOUND.

AFTER such high authority as Mr. Rivers, I am sure it will not require any other person to speak in its favour as being the best and cheapest wash for destroying the aphid; but like sulphur, ammoniacal gas-water, &c., it requires to be used with caution. About five weeks since I saw near London a collection of Geraniums and Fuchsias entirely spoiled by using the above *carelessly*; and even last week I had two vines sent me that had been washed with the Gishurst Compound, and the foliage of which is greatly disfigured. I enclose a leaf for your inspection.—EDWARD BENNETT, Osberton Hall.

[There is no doubt that the Gishurst Compound, like all similar remedies, must of necessity be used with caution; but there are people who fancy they cannot have too much of a good thing, and hence they fail, throwing that blame on others which attaches to themselves. It is true Mr. Rivers recommends three ounces to the gallon; but it is for Vines out of doors, the tissue of which is much firmer than of those grown under glass. We, therefore, recommend a trial of two ounces to the gallon in such cases; and if two, or even three applications are necessary, better to do so than to do mischief. There is no doubt that the Gishurst Compound is an excellent remedy.—EDS.]

ANNUAL MEETING OF BOTANISTS.—Recently the annual meeting of the Lancashire botanists was held in the Odd-Fellows' Hall, Stockport. Two hundred and fifty delegates were present from various parts of Lancashire, Cheshire, Yorkshire and Derbyshire. Mr. Poacher, of Stockport, was called to the chair; and after some preliminary business the delegates assembled round a table and produced specimens of plants they had brought with them from their respective districts. It was agreed that the next annual gathering should be held in Yorkshire. Upon a motion that the meeting be held at Bills-o'-Jacks, Saddleworth, an amendment was proposed that it should be held on the nursery grounds of Mr. Stansfield, at Todmorden, on the 2nd week in July next. This was carried by a large majority. It then transpired that the number of members of botanical societies present was 75 from Lancashire, 32 from Cheshire, 7 from Yorkshire, and 8 from Derbyshire, making a total of 120. The naming of various plants was then proceeded with. Mr. Stansfield, of Todmorden, exhibited a large variety of British and other Ferns, taking up separately and naming 199 distinct specimens. Mr. Siddall was then called upon to name other plants and Ferns; and was followed by Mr. Williamson, of Stockport, and Mr. Percival, jun., who named a great variety, and kindly offered to name any plant produced. "Old Buxton," the veteran naturalist, and Mr. Leo H. Grindon were present, and the proceedings passed off with great harmony and satisfaction.

THE HERBARY.

(Continued from page 226.)

SECTION 3.—HERBS USED FOR TARTS.

UNDER this head there are Rhubarb and Pumpkins, or Gourds. It will be in the recollection of many of our readers, that there was a time, when they were young, that the first was but little used as a tart plant; but so rapidly has it gained the public estimation, that now, whilst I am writing, there are scores—I had almost said hundreds—of waggon-loads brought every day to the various London markets, and the large towns in the country are, in proportion, equally well supplied. Forty years ago my father had a kind of nursery market garden at Leeds, in Yorkshire, and he was one of the first to cultivate to any extent this useful and now highly valued herb. Then, however, the use of it was looked upon with suspicion. People were afraid it would physic them in some way the same as the root! Like every plant that the public value, the cultivators have striven to improve the original species, and have been very successful with Rhubarb. The first sorts that my father grew produced leaf-stalks, perhaps not more than a foot long; but now they are frequently from three to four feet in length, and stout in proportion. The flavour and succulency are also greatly improved. As it is desirable that everybody should know the proper name of every plant they grow, and from whence they were introduced, I shall give, as I have done with other herbs, the botanical names of Rhubarb:—

Rheum hybridum. A hardy perennial. Native of Asia.

R. palmatum. The hand-shaped Rhubarb. A hardy perennial. Native of Bokhara, supposed to be the true Turkey Rhubarb.

R. Rhaponticum. Pontic Rhubarb. Native of Pontus, in Asia. A hardy perennial.

R. undulatum (waved leaved). A hardy perennial. Native of China.

From these original species all the varieties grown in gardens have been raised. The late Mr. Myatt, of Deptford, was very successful in this improving pursuit.

The sorts most commonly grown are the *Tobolsk*, *Gigantic*, early scarlet *Victoria*, and *Elford*. The *Victoria* is, however, the most generally esteemed on account of the great size it attains.

Rhubarb, besides being used for tarts and puddings, is also excellent made into a kind of marmalade. If the stalks are gathered moderately young, peeled, and cut into short lengths, then put into a stew-pot with a small quantity of water, and placed in the oven till they are soft and transparent, then sugar added to suit the palate, and the whole well mixed and gently stewed over again, it has then a resemblance to stewed Greengage Plums, and should be placed in a cool cellar, in jars: in that state nothing can be more pleasant to the palate. Spread upon slices of bread, children, and adults too, enjoy it mightily. It is a cheap substitute for butter for the cottager's children, and is particularly cooling and pleasant in the hot summer days. A very excellent and pleasant wine has been made also from the stalks of Rhubarb. I remember many years ago, when the Yorkshire Horticultural Society was in existence, prizes were offered for the best British wines. Some Rhubarb wine of excellent quality took the first prize frequently. Now, it is not necessary that the stalks should be young and tender to make this wine; on the contrary, it may be made quite as good from such stalks as are fully grown and almost too old for cooking: hence wine to a great extent might be made from what is for other purposes almost useless.

Rhubarb is propagated both by seeds and divisions of the roots. The seeds may be sown either in spring or autumn. The soil should be deeply dug, and should be light, moist, and very rich. Sow the seeds in drills a foot apart, about one inch deep. When a year old, transplant them into rows three or four feet apart, and as much from plant to plant in the row. The *Gigantic* and *Victoria* varieties require the most room. Growers for exhibition purposes make holes for each plant, and throw into each hole half a barrow-load of well-rotted dung, and by this means obtain the extraordinary size we see on the tables at the shows. For general purposes, however, a good dunging on the surface, well dug in before the planting time, is sufficient. To keep it strong, a liberal application of manure is necessary every autumn. I have observed, that wherever the ground produces Docks naturally in great luxuriance, that land suits Rhubarb the best.

If any particular variety is cultivated, and it is considered desirable to keep that variety true, then it should be propagated by division. To do this properly, it is best to take up the roots as soon as the leaves decay, and with a very strong knife make as many divisions as are needed, taking care that there is a good strong

bud to each division. Plant them at the proper distances, covering each bud three inches deep. The after-treatment, both of seedlings and divisions, consists in keeping down weeds, breaking off flower-stems, stirring the ground frequently, especially in spring, and giving a heavy manuring, well forked in every autumn, covering the crowns well up. With this care a plantation will last for several years.

This excellent pie-vegetable forces readily, thus extending the season for its use greatly. A temperature of 45° will start it into growth soon after Christmas. There are various ways of forcing it. On a large scale, that method described in the *Cottage Gardeners' Dictionary*, p. 693, is the best. It is simply a space covered with a kind of hurdles, and hot dung placed at the side and on the top to create a growing temperature within the hurdles. It is also forced like Sea-kale, under deep earthenware pots surrounded by warm stable litter; also, by filling large pots with roots and placing them in a vinery, hothouse, or Mushroom-house. Cottagers may force it easily by taking up some strong roots with balls of earth, and placing them in a warm room or cellar. Rhubarb in a blanched state is considered superior to that in the open air, inasmuch as it requires less sugar, and is improved in flavour and appearance.

THE PUMPKIN OR GOURD (*Cucurbita pepo*).—A half-hardy trailing annual. Native of the Levant.

Pumpkins are, or were, used in some of the villages in England as a kind of pie, the rind serving as the crust. When the rind is hard enough, the seeds were taken out and the space filled with sliced Apples (Rhubarb would answer as well), adding a little sugar and spice; it was then set on a dish and baked in an oven, and when done eaten with butter. Pumpkin pies made in the ordinary way are almost universally made and eaten in America, and on the continent of Europe. Formerly they were in common use in Britain; but Rhubarb has superseded them to a considerable extent. The variety called *Vegetable Marrow* is much used as a vegetable, and is very good indeed when boiled young and served up with toast and melted butter. The variety named *Custard* is still more excellent. They are also used in soups, and fried and stewed in oil or butter. The culture of these Gourds is easy. Sow the seeds on a gentle hotbed in April, pot them singly in five-inch pots; and, as soon as the frosts are gone, plant them out on dung where they will have room to ramble, either on the ground or trained to a wall, or over a heap of sticks. Cottagers may raise the plants from seeds by sowing them in pots, and placing the pots in a window facing the south, and in the proper season planting them out wherever there is room for their trailing shoots to extend. A thatched-cottage roof would suit them admirably, and the large green leaves and golden flowers would be ornamental in such a position.—T. APPLEBY.

THE GENUS PRIMULA.

[Knowing a clergyman who delights in hardy herbaceous plants, we ventured to ask him to furnish us with a list of, and some notes upon, those he cultivates. In reply he has forwarded the following; and we are quite sure that our readers will join us in hoping that he will favour us with many like it.—EDS.]

PRIMULA ACAULIS, var. *alba*, var. *rubra*.

P. ELATIOR, of all gradations, from a true Oxlip to a true Cowslip (self-sown). Also, *P. elatior*, var. *alba*.

PRIMULA VERIS, of all shades, from the natural colour to a deep red, self-sown.

I have two or three plants of *Polyanthus* which the florists would, perhaps, consider as pretty good ones, which have, I believe, originated from Cowslip seed, self-sown.

I should have thought that the Oxlip is a hybrid between the common Primrose and the Cowslip, had I not known that Professor Henslow thought, and probably still thinks, that the Primrose, Oxlip, and Cowslip, are specifically identical; that seed produced by any one of these varieties, if it fall in a very shady situation, will almost certainly produce the common Primrose; that if the seed fall in a very open situation, it will almost certainly produce the Cowslip; and if the seed fall in a situation intermediate as to shade, it will, in many instances, produce the Oxlip. I believe that he also thinks, that by a due regulation of shade, the Primrose may be transformed into the Oxlip, and finally into the Cowslip. I cannot but bow with submission to such very high authority.

I have observed that the common Primrose under cultivation,

or growing from self-sown seed in a garden, often puts up a scape ; but even in that case it may readily be distinguished from a true Oxlip ; the scape is much more slender than that of the Oxlip, and the individual blossoms, both as to form and colour, are precisely those of the common Primrose.

P. ALTAICA.—Is not this a mere variety of the common Primrose ?

Bluc Oxlip, or Polyanthus. I think I have understood that this plant is scarce. Why it should be scarce I do not know ; for it increases as readily as any other variety of the Oxlip.

P. DENTICULATA.

P. MUNROI.—This plant should, I think, be grown in a pot, and placed in a saucer full of water.

P. AURICULA LUTEA.—A few more varieties, but none that the florists would value.

P. DENTATA.

P. MARGINATA.

P. LONGIFOLIA.

P. PARINOSA.

P. NIVALIS.—A hybrid which grew from seeds which I gathered from *P. nivalis*, and which is evidently a hybrid between *P. nivalis* and *P. marginata* ; but though the seeds were from *P. nivalis*, it is much more like *P. marginata*.

P. VILLOSA, or P. GLUTINOSA, or P. VISCOZA, or perhaps all the three species.

P. INTEGRIFOLIA.

P. HELVETICA.

Also a *Primula* which is, I think, probably a white, or rather a cream-coloured variety of *P. Helvetica* ; for the forms of the leaves and also of the corollæ seem to me to be almost the same with those of the common *P. Helvetica*.

P. MINIMA.

P. CORTUSOIDES.

P. PRÆNITENS.

I have also a few *Primula* which have grown from self-sown seed, and which may be either hybrids or varieties of *P. auricula* ; as that plant is, as every one knows, very apt to sport.

N.B.—I have not artificially hybridised any of these *Primula*. I have not the skill requisite for the performance of so nice an operation ; and indeed I do not wish I had that skill, for I look upon hybrids, whether in the vegetable or animal kingdom, as monsters. I hope that I shall not, by speaking thus, give offence to some eminent horticulturists of the present day, who have artificially produced effects which in nature seem to have been most carefully avoided. Many of these hybrids are certainly very showy—nay, very beautiful ; still they are monsters. The genera *Pelargonium*, *Calceolaria*, &c., are, I think, in the opinion of botanists completely ruined. Those who admire the unadulterated productions of Nature ought to import the genuine species of these genera from their native habitats.—Q. Z.

VARIETIES.

FARMER GARRULOUS TALKS.

“John, a man needs to go away from home occasionally, in order to be ‘glad to get back again,’ and there are a comfort and a lesson in such gladness. Would I exchange my own hickory fire for the coal-grate of Abram Dodsworth, Esq. ?—or this green-baize-covered straw-stuffed lounge, made of a board and four ash sticks, with a saw, auger, and ax, for the spring-sofas in the parlours of Calvin Cornercrusher ?—or the ornaments of this cheerful sitting-room, consisting—let us see, there is that case of insects that Dick has collected, impaled on pins ; that dry grass that Jane gathered last fall, and which has remained right where she put it ever since she married that young Esculap—dogs take it ! that young doctor ; and that trace of corn over the door ; and your shot gun up on those hooks ; and those portraits of them Durhams—I declare, and there are those two woollen rabbits that—don’t bark apple trees—were stuffed with salt by Jane’s own hand, and—well, sir, I would not exchange them for all the fancy landscape paintings the rich widow Webbfoot has in her fine-art gallery. The fact is, John, there is a great deal of false sentiment in the world. If a man grows rich, he affects refinement and taste, and effects the world in such a manner as that it laughs at him. Be natural, John, and simple, John, and honest everywhere and anywhere, and you will become a lion—no mistake about it, sir ! The man who dares to be eccentric enough to be comfortable anywhere, and natural everywhere, or the woman either, for that matter, makes an impression that is enviable,

especially among those whose good opinion is worth having. Give me a natural picture John, always. Talking about natural pictures, I was over to young Mose Mighty’s the other day. You know he has married rich, and is trying to fix up a fine place. Well, sir, he has stuffed that little two-by-four yard of his chock full of trees and shrubs, and dug up every green grass plot in it. You know his father, like a great many others no wiser than himself, placed that good, comfortable house as near the road as he could well get it—a man with a thousand acres of land, and a house in the street almost, and his barns all one side of the farm ! Catch me doing that thing. Of course, I should look a little to elevation and convenience, but I should aim to get my home as near the centre of the homestead as possible, other things being equal—at any rate, it should not be within one hundred rods of the road. Well, sir, Mose had his gardener, and was stuffing in the plants and shrubs, &c., when I drove up.

“How do you do to-day, Mr. Mighty ?” I said.

“How are you Farmer Garrulous ?” said he.

“Very well, sir,” said I. “See you are fixing up considerably.”

“Oh, yes,” said Mose, “I am expending money enough on this place to satisfy a Downing, and I imagine it will please the old fellow when it is done—at any rate, I’ll have him up here, cost what it will, to suggest any improvements he may think proper.”

“You will, eh ?” said I.

“Yes, I’m bound to ———”

“Raise him from the dead ?”

“What do you mean, Mr. Garrulous ? Downing is not dead ?”

“Well, yes, in one respect—his body is dead—his works live, and I’ve no doubt his spirit does.”

“You don’t say ? Hadn’t heard of it !—sorry—deuced sorry—have to get some one else. But, I say, Garrulous, don’t you think that a picture he would like to look at ?”

“Have you got Downing’s works, Mr. Mighty ?”

“No, Jolly Greenleaf loaned them to me ; but I’ll send for them, if you’ve any suggestions to make.”

“Well, send. I think I can show you what Downing would think of your place.” The book came after a little—“Downing’s Landscape Gardening.” I turned to the page where Downing directs those who have small grounds, &c., how to make their places tasteful and agreeable. He says, you know, ‘by attempting only the simple and natural ; and the unfailing way to secure this, is to employ as leading features only trees and grass.’ And then I read Mose :—“These rural bedlams, full of all kinds of absurdities, without a leading character or expression of any sort, cost their owners a vast deal of trouble and money, without giving a tasteful mind a shadow of the beauty which it feels at the first glimpse of a neat cottage residence, with its simple sylvan character of well kept lawn and trees.”

“Now,” said I to Mose, “you will discover you have not followed Downing’s plans very closely.”

“The man was completely taken down, as he deserved to be—talking about Downing, with no idea whether he was dead or alive, and as little knowledge of his writings, or directions, as I have of the number of mastodons it took to make a prairie.”

“But, John, this is a terrible rain for cattle and sheep that are out. We must get out early in the morning and look after the lambs. Had as soon lose a yearling as an early lamb.”—(*Prairie Farmer.*)

COLOURING FRUITS.—Duhamel in his “Treatise on Fruit Trees,” says, that to encourage the colouring of kernel fruits it is merely necessary, when they have attained their full size, to remove the leaves which shade them, first from one side, then from the other, and finally all round. He adds, that their colouring may be rendered more brilliant by marking the side next the sun with a hair pencil dipped in cold water. M. de Flotow had remarked, but without being able to account for the fact, that in Apples and Pears which were striped on both sides the rays, or stripes, were longitudinal—that is, from the eye to the stalk, but never transversely ; although he says, that in several works on pomology, fruits are figured with the stripes in the latter direction. The results of the experiments have led to the conclusion that the action of the sun’s rays upon the skin of fruits wetted or moistened by dew is the cause to which the production of these red hands is to be assigned. If, says he, fruits wetted by dew are observed whilst the rays of the rising sun strike upon them, it will be seen that the moisture collects in drops on the edge of the cavity in which the stalk is inserted and on the sides, forming lines of moisture of greater or less length, according to the size of the drops, and according as the sun evaporates them with greater or less rapidity.—(*Ibid.*)

TO CORRESPONDENTS.

VARIOUS (Mina Ma).—Pansies with extra petals are not uncommon; nor are semi-double varieties desirable, being less handsome than the single. Seedlings from Pelargonium seed sown in autumn will not bloom next year. There are many white-flowered varieties. There is no pure white or pink Pansy; but there are light blue and orange. Raising varieties of Pansies and Pelargoniums may be effected without expense; therefore there can be no harm even if you do not raise any that are superior. If you do raise superior kinds they will reward you for your patience and perseverance. Sow the *Dog's-tooth* Violet now. We know of no yellow Verbenas.

LARGE HYDRANGEAS IN SMALL POTS—LIFTING VINES (T. Evans).—You put your letter in the wrong box, it ought to have been put into the Editor's. But you people near Liverpool seem to think any port will do in a storm. The way they get those enormous large heads of Hydrangeas in 48-pots is this:—They have strong old plants to get cuttings from; and in September, or later, or earlier, when they can feel the top of a shoot is set for bloom another year, they instantly cut it off with three joints, put it in a 60-pot, plunge it in a warm bed, and root it quickly without forcing the flower-bud any farther. Early in the spring they shift into the next largest size pot, and humour the plant so as to enable it to make the bloom as large as it would be if the shoot had never been cut off. Your plants struck this spring will make a bed next summer; but ten thousand of them would not furnish one bloom such as you want. The middle of September is the best time to lift Vines for making a new border; but all the materials ought to have been well mixed, turned over and over, and be ready on the spot by the 20th of the month; then to begin at one end, and open the whole width of the border, get out the roots of the first Vine, pack them in damp mats till that part of the border is finished; then to spread out the roots, and to put only six inches deep of the compost over them at first; so on with the next and next Vine, till the last; but if the drains are faulty, get the front one done right before you begin the trees, and the cross drains can be made as the border is being made.

BITTERNESS IN CUCUMBERS (E. C. B.).—We have always suspected the reason why Cucumbers are bitter; and the chief clue will be found in the fact, that they seldom are so except in the heat of summer and autumn, and rather fully exposed to the sun. The quicker grown a Cucumber is, the sweeter and crisper it is. It may be called a fruit, but, as used, it partakes of the general characteristics of a succulent vegetable. Give the plant full exposure to a powerful sunlight, thin the leaves, so that the fruit is also exposed, keep the plants dry, and not only does the fruit perspire its juices like the leaves, but its exposure causes it to assimilate properties, which it does not do when grown in moisture and kept from the sun's rays either by shading or covering by its own leaves. At any rate, we have had frames yielding fruit that were as bitter as soot, but when the larger ones were cut out, a little top dressing, and a good manure watering given, and shade also given in powerful sun until the fine foliage gives shade enough, the fruit from the same plants were as crisp and sweet as ever. Extra dryness, extra heat, and extra exposure to sunlight, in our opinion, are the causes of bitterness. What say our coadjutors?

HARDY FERNS TO MIX WITH GERANIUMS (An Amateur, Tyrone).—We should select *Adiantum pedatum*, *Lastræa intermedia*, *Osmunda regalis*, and *Struthiopteris pensylvanica*. They are of different habits of growth, and may be obtained of Mr. Sims, nurseryman, Foot's Cray, Kent. *Dahlia* is pronounced *Dá-le-a*, and *Gladiolus*, *Gla-dí-lus*.

IRON PUMPS (A Subscriber).—We have seen very ornamental pumps at Messrs. Warner and Sons, and Messrs. Tyler and Sons. They will send you prices if you write to them.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

AUGUST 10th. ORMSKIRK and SOUTHPORT. Sec., Mr. James Spencer, Ormskirk. Entries close the 22nd of July.

AUGUST 19th and 20th. BRADFORD. Secs., Mr. A. Hardy, Bowling Old Lane, Bradford, and Mr. E. Blackburn, Black Bull Inn, Ive Gate, Bradford. Entries close August 12th.

AUGUST 23rd and 24th. WHITBY. Sec., S. Burn, Esq., 1, East Terrace, Whitby. Entries close August 13th.

AUGUST 25th, 26th, and 27th. MACLESFIELD. Sec., Mr. W. Roe. Entries close August 10th.

AUGUST 27th. HALIFAX. Sec., William Irvine, Holmfild, Ovenden, near Halifax.

AUGUST 29th, 30th, 31st, and SEPTEMBER 1st. CRYSTAL PALACE. Poultry, Pigeons, and Rabbits. Sec., William Houghton. Entries close Saturday, July 30th.

SEPTEMBER 22nd. BRIDGORTH. Sec., Richard Taylor, Bridgnorth.

OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. Sec., Geo. Griffiths, 7, St. Swithin Street, Worcester.

NOVEMBER 28th, 29th, and 30th, and DECEMBER 1st. BIRMINGHAM. Sec., Mr. J. Morgan, Bingley Hall, Birmingham.

N.B.—Secretaries will oblige us by sending early copies of their lists.

PARALYSIS IN CHICKENS—LEGS AND TAIL OF POLANDS.

"I have lost several fine promising chickens of six weeks and two months old in the following manner:—They suddenly lost the use of their legs, which were *sprawled* out sideways, and in some cases one or both wings were also affected. I had two of them killed, and the others lived for a few days only and then died. They appeared to be in perfect health all the time. I could

not account for these sudden seizures till one day, when I saw an old hen with some young chickens peck one of the older ones, which was attacked directly in the way I have described. I then imagined that an injury of the spine was the cause of these attacks of paralysis; and in all the other cases I traced it to injuries of the back, and yet no bruise or mark was visible. I shall be very much obliged to you to inform me in your next paper if any thing can be done, should I have any more birds affected in the same way.

"I, also, should be much obliged to you, to tell me the reason of Poland's legs turning white when two and three months old. The birds appear in excellent health and condition. Would it prevent their taking a prize at a Show? or will they turn to a blue colour again? Also, should a Silver Poland cock's tail be white tipped with black, like a Silver-spangled Hamburg's, or is it of no consequence if partly black? Is it detrimental to a young Dorking cock to have the fifth toe growing up against his leg? Would it disqualify him at a Show, being good in all other respects?

"I wish you could persuade some of your poultry correspondents to give, through the medium of your columns, an account of their success in rearing chickens this season, as I feel sure it would be interesting to all the readers of *The Poultry Chronicle*."—A.

[We thank our correspondent for her letter, and will speak of the last part first. We also wish some of our friends would give the results of their hatching and rearing; also of their general poultry experience during the season. Many persons fancy they have nothing worth communicating; others feel diffident about appearing in print. Both are wrong. It is impossible any one, endowed only with the most moderate powers of observation, can follow a pursuit without obtaining knowledge of some facts valuable to those similarly engaged. No power or practice of writing is necessary for the exchange of such knowledge in our columns, and it is only free intercommunication that can carry out our title of *The Poultry Chronicle*.

The cause of the appearance and death in the chickens is an injury to the spine between the neck and the hips; it causes paralysis. If behind the hips it would cause drooping of the tail. If the chickens were dissected, the injury would be discovered. Some Spanish fowls of our own were in the habit of trespassing on a neighbouring cottager's garden. Without any malicious intention, the owner struck a very valuable hen with a switch behind the hips: the injury was small, but she has never held her tail up since. It is a very rare occurrence for them to recover even partially.

The change in the colour of Poland's legs is the result of age, just as in the top-knots of the Golden variety, which become whiter as they get older. We doubt whether they will ever regain their original colour. Light-blue legs would not disqualify, but white ones would.

It is very desirable that the tail of a Poland cock should be pure white tipped at the ends, like that of a Spangled Hamburg; but it is difficult to get, except at the price of the lacing and barring of the wings, and the spangled breast. Almost all are partly black, and a clear tail is only one, though an important point.

It is not a disqualification that the fifth toe of a Dorking cock should grow up against his leg, unless it were joined to and formed part of it—that would be a great defect. The only essential is, that the claws should be five in number, and well defined.]

MERTHYR TYDFIL POULTRY SHOW.

This pleasant annual gathering is gradually assuming the importance due to the exertions of its promoters. It is what it should be—a meeting not only for the rank and fashion of the neighbourhood, but for every one. It is not only a Show for Poultry, but for Flowers and Fruit. We are sorry we are unable to speak critically or instructively of the latter; but we may repeat what we heard from the Judges, and can chronicle what we saw. We saw three large stands full of Pines, several weighing over 9 lbs. We saw every other description of fruit, Nectarines, Peaches, &c. We saw a very tempting Exhibition. Two Vines growing in pots were trained up till they formed an arch, from which very numerous and large bunches hung temptingly within reach. A placard requesting that the fruit might not be touched only afforded increased food for the imagination, and allowed us to conceive how refreshing they would be on such a hot day. Devices of flowers were numerous and some of them of surpassing beauty and taste.

The Show was held in the Market Hall, a large square building. The entire centre was occupied by every description of flowers, arranged so as to form a receding bank of gorgeous colours. The *fête*, for we can call it nothing else, was enlivened by the presence of the Cyfaithfa band. This, as well as many other things, is due to the kindness of Mr. Crawshay; and that gentleman, who employs many thousands of the inhabitants, must reap a rich reward in seeing the happiness to which he contributes so largely.

There is one peculiarity of this Show which seems to belong to it. Here the cottagers' classes are not only well filled, but the competition is great.

In the flower and vegetable classes they compete among themselves, and they made on Wednesday and Thursday a noble show. Of their poultry efforts we shall speak hereafter. Formerly the exhibition was confined to the district, now the poultry is thrown open. The result was nearly two hundred pens, many of them containing first class birds.

We begin with twelve pens of adult *Dorkings*. Many of these were excellent, and it will not be doubted when we say that Capt. T. Parker was only second. Mr. Forman, of Pendarran, was first. Mr. Jones, of Cardiff, showed capital fowls in this class.

In *Spanish*, Mr. Fowler, of Aylesbury, was first; but he was hard run by Mr. Forman, who took second. Mr. Crawshay showed an excellent cock and hen, but the third bird was not equal to them. She could not, however, prevent them from having a high commendation. Mr. Evans also merited the same distinction.

The *Game* and Black and White *Cochins* were weak, only numerically, and all the prizes were taken by Mr. Crawshay. Messrs. Fowler and Crawshay took the prizes for Grouse and Buff *Cochins*. These were excellent birds.

We are bound to speak in the highest terms of the Pencilled *Hamburgs*. We have never seen better. Those of Messrs. Llewellyn and Tracy are good enough to compete anywhere, and there were chickens shown in these classes superior to anything we have yet seen this year. We are sorry we cannot award the same meed to the Spangled. They were perfect in all points, but one most essential one. Every pen had one or more bad combs, very bad ones, falling over. There was a class for Black *Hamburgs*, and good birds were shown; but there was no competition.

Polish were also a weak class.

Bantams were few, but good. The *Sebrights* belonging to Mr. Crawshay, and the *Game* shown by Captain Parker, were all meritorious. If the cock of the latter were well dubbed, it is a pen that might take first prizes at many other Shows. Mr. Williams showed a good pen of White; but the long flowing sickle feathers seem to be disappearing from the breed. It is a pity, as it is a great point.

Mr. Fowler showed a very good pen of *Brahmas* in the class for a distinct breed.

Both *Game* and *Dorking* cocks were feebly represented, so far as entries were concerned. Mr. Crawshay won for the first, and Captain Parker for the second with a bird well worthy the reputation his brother has gained in this breed.

Mr. Crawshay deservedly carried off the prize for *Single Spanish Cocks* with a beautiful bird.

Next came *Geese* and *Ducks*. In the former Mr. Crawshay took a first and a second; Mr. Fowler and Messrs. Cnff doing the same. *Geese* and *Goslings* have distinct prizes, but all are shown in one class. Although there are eight prizes, yet all *Ducks* are shown under the same number. Mr. Fowler was obliged to be content with second for Aylesbury, beaten by Mr. Payne, of Cardiff. Mr. Crawshay took first for Buenos Ayrean and Muscovy. Mr. Fowler for Rouens.

The *Turkeys* call for no particular mention, as the competition was small.

We now enter on the second part of this Show, that devoted to *Chickens*. We have to note an unprecedented thing in *Dorkings*. Both the prizes were taken by White against the Coloured. Those shown by Mr. Forman and Miss Ida Morgan were very good, and were sold as soon as the Show was opened. For *Spanish*, Messrs. Payne and Crawshay were first and second. Mr. Llewellyn took both prizes for Silver-pencilled *Chickens*, and they were highly meritorious. There were some curious *Indian Game* that were rewarded with a first prize in class 9. The *Poland Chickens* were also good, and brought prizes to Messrs. Tracy and Bowden. The *Spangled Hamburg Chickens* were free from the defective combs of their seniors. Messrs.

Edwards and Crawshay took the honours, and several deserved high commendations.

Then came prizes devoted solely to workmen. They form very pleasing classes, and the entries were good. But it is our duty to point out to our friends in this department the necessity and advantage of adhering to a pure breed. Thus, in the first class, for a cock and hen of any breed, there were many that seemed the result of every cross that can be imagined. They were, as cottagers' chickens always are, well grown and strong, but their merits ended there. The birds shown prove there is no lack of good strains in the neighbourhood. There is, then, a good field open for the well-wishers to the workmen (and they are evidently numerous), to give them at the proper time a few pure eggs. This will enable them not only to show better birds, but will make them a better pecuniary return. Messrs. Tucker and Phillips were first and second, while three other pens received merited commendations. The preceding remarks apply equally to the ducklings and pair of chickens. With the exception of the prize birds, they were not of any known distinct breed. Thus, a brown duck was shown with a white drake, and chickens with a smatter of *Hamburg*, a bit of *Poland*, and a notion of *Dorking*. We would rob none of their dues, and, therefore, record the success of Mrs. Mary Williams, and Messrs. Leyshon, Bowden, Tucker, Pugh, Payne, Rees, and Evans. There was a silver cup given for the three best pens of fowls exhibited. It was taken by Mr. Fowler.

As we wish to be faithful chroniclers, we here record our opinion that anything like a collection-cup is a mistake. It is a thankless task for the Judge, and does not promote the harmony of a Show. The money would be better spent in increasing the prizes for those classes in which the entries are most numerous. One more comment and we have done. Exhibitors must bear in mind, that mere weight, especially in young birds, is not a royal road to success. Size and frame-work in growing birds are more essential.

Mr. Harris was indefatigable as usual. All the Committee worked zealously and well, and it was a gala day at Merthyr.

The Judge was Mr. Bailly, of Mount Street, Grosvenor Square.

CLASSIFICATION OF FOWLS.

THE present time being one not much occupied with Poultry Shows, and there being a dearth of poultry news, I think it a favourable opportunity for offering a few remarks on what I consider would be an improvement in the order of classification or arranging the numerous varieties of domestic fowls in our poultry prize lists.

What I wish to impress on exhibitors, show committees, and poultry judges is a more natural and scientific arrangement of the numerous breeds in some sort of system, or natural groups, giving the place of honour in each breed to what appears to be the original colour of each variety.

My ideas are that they should be arranged in three groups:—

1st. The *INCUBATORS*, or such as follow their natural occupation of sitting and rearing their own young.

2nd. The *NON-SITTERS*, or such as rarely evince a desire to sit and take upon themselves the natural duties of maternal cares.

3rd. The *DWARFS*, or *BANTAMS*.

I think, also, it would be very advisable to appropriate a class or classes for the various wild breeds or species of fowls; six of which are enumerated by our naturalists, of which the *Gallus Bankiva* is thought to be the probable origin of our domestic varieties.

I am too slightly acquainted with these wild species to give a description of them, nor have I a standard work by me from which I could extract such; but I consider it would tend much to the advancement of poultry knowledge if these original species were encouraged at our fowl exhibitions. I would, therefore, advise the adoption of two classes at the commencement of the prize list, first for the *Gallus Bankiva*, and secondly for any others of the wild species of *Galli*.

Returning to our domestic varieties. The first family, or group, would be the *INCUBATORS*; the first breed, or variety, of which would be the *Game*, as nearest approaching to the wild race. This variety is divided into several subvarieties distinguished by colour. For the same reason I have above noticed, the *Black-breasted Red* seem to be most likely the original subvariety of the breed. Consequently, compressing the numerous subvarieties into four classes, I would arrange them in order. First, the *Black-breasted* and other *Reds*; second, the *Duckwings*

and other Greys, except Blues; third, whole colours, as Black, White, and Blues; and fourth, mixed colours, or any other varieties, as Piles or Pieds, Red Duckwings, Red Duns, Black Brasswings, Spangles, Cuckoos, Ginger Blues, &c.

Next in order to the Game should follow the *Malays*. These should at least have three classes, where the committees can possibly afford them. The primitive colour appears to be red, and should therefore stand thus:—First, Reds; second, whole colours, as Whites, Blacks, and Duns; third, any other sub-variety or mixed colour.

Next on the list should follow the *Shanghais*. Here again, although the Buffs have been the most fashionable, I believe the dark Reds to be the truest subvariety, and in the natural order should stand first.

First, Black-breasted and other dark Reds, with their partridge, grouse, and cinnamon hens; second, the fashionable Buffs, Silver Cinnamons, and other light Reds; third, whole colours, as White and Black; and fourth, any other colour or subvarieties, as Silver and Greys, commonly called Brahmas and Cuckoos.

The fourth breed, or variety, is the so-called *Friesland* or *Frizzled* fowls—a very interesting and distinct variety that do not meet with the encouragement they deserve. The chief plumage appears to be quite white; but there are also other sub-varieties of this breed.

The fifth breed I enumerate is the *Persian tailless fowl*, or *Rumpkin*. This is also a variety not much patronised. Red-coloured with rose combs seem to be the purest subvariety; but many other colours exist.

Sixthly, come the *Surrey* and *Sussex* fowls. I would give them four classes. They appear to be all of mongrel extraction, but exceedingly good barn-door fowls.

I look on the Cuckoo, Dominique, or Scotch Grey, as it is variously called, as the oldest subvariety; next, the grey, single-combed, four-toed Sussex; third, the rose-combed white Dorking; fourth, the Scotch Bakes, or Dumpies; and lastly, I would conclude this group of Incubators with the usual class for any other subvariety of Dorking, Surrey, or Sussex fowl.—B. P. B.

(To be continued.)

PRESCOT POULTRY SHOW.

THIS, the sixth annual exhibition, was held in a field at Park-side, Prescott, on the 21st instant. The following are the awards:

SPANISH.—First, J. Garlick, Hygeia Street, Everton. Second, Capt. W. W. Hornby, R.N., Knowsley Cottage.

DORKINGS.—Prize, Capt. W. W. Hornby, R.N., Knowsley Cottage. **CHICKENS.**—First and Second, Capt. W. W. Hornby, R.N., Knowsley Cottage.

COCHIN-CHINA* (Buff).—First, T. Stretch, Bootle, near Liverpool. Second, W. Copple, Eccleston.

COCHIN-CHINA (Brown or Partridge).—First, T. Stretch, Bootle, near Liverpool. Second, Miss V. W. Musgrove, West Tower, Aughton.

COCHIN-CHINA (White).—First, W. Copple, Eccleston. Second, J. Friar, St. Helens. **CHICKENS.**—Prize, T. Stretch, Bootle, Liverpool.

BRAHMA POOTRA.—First and Second, R. Teebay, Fulwood, Preston.

HAMBURGH (Golden-spangled).—Prize, W. C. Worrall, Rice House, Knotty Ash.

HAMBURGH (Golden-peuilled).—First, W. C. Worrall, Rice House, Knotty Ash. Second, W. Pierce, Hartford, Northwich.

HAMBURGH (Silver-spangled).—First, W. Pierce, Hartford, Northwich. Second, J. Dixon, North Park, Bradford.

HAMBURGH (Silver-pencilled).—Prize, J. Dixon, Bradford. **CHICKENS.**—Prize, W. Pierce, Hartford, Northwich.

POLANDS (any variety).—First and Second, J. Dixon, Bradford.

GAME (Black-breasted and other Reds).—First, Captain W. W. Hornby, R.N., Knowsley Cottage. Second, G. H. Moss, the Beach, Aighburth.

GAME (Duckwing and other Greys).—First, J. Brown. Second, F. Worrall, Knotty Ash House.

GAME (any other variety).—No competition. **CHICKENS.**—First, J. Holme, Knowsley. Second, W. Lyon, Carr Lodge.

BANTAMS (Gold and Silver-laced).—First, T. H. D. Bayley, Ickwell House, Biggleswade. Second, H. Worrall, Spring Grove, West Derby.

BANTAMS (any other variety).—First, I. Thornton, High Street, Heckmondwike (Game). Second, W. C. Worrall, Rice House, Knotty Ash.

DUCKS (Aylesbury).—First and Second, J. K. Fowler, Prebendal Farm, Aylesbury.

DUCKS (Rouen).—First and Second, J. K. Fowler, Prebendal Farm, Aylesbury.

DUCKS (any variety).—First, J. Dixon, North Park, Bradford (Mandarin Ducks). Second, I. Thornton, High Street, Heckmondwike (Grey Call).

SINGLE COCK (Game).—First, G. H. Moss. Second, A. Sutherland, Burnley.

PIGEONS.—Carriers.—First, H. Child, jun., Sherbourne Road, Birmingham. Second, E. Worrall, Knotty Ash House. **BALDS.**—First and Second,

W. Sephton, Victoria Place, Prescott. **Beards.**—First, W. Sephton, Victoria Place, Prescott. Second, W. Edge, Acton New Town, Birmingham. **Runts.**—Prize, H. Child, jun., Sherbourne Road Birmingham. **Owls.**—First, E. Worrall, Knotty Ash House. Second, W. Sephton, Victoria Place, Prescott. **Fantails.**—No exhibitors. **Pouters or Croppers.**—First, H. Child, jun., Sherbourne Road, Birmingham. Second, J. Twist, Park-side. **Any other variety.**—First, E. Worrall, Knotty Ash House (Barbs). Second, F. Worrall, Knotty Ash House (Turbits).

EXOTIC HONEY BEE.

IN reference to my communication on this subject in your last publication (page 234), it may be well to point out an error of the press. The address of M. Hermann is Tamins-by-Chur (not Chuz), Canton Grison.

I have already received an application as to the expense of obtaining a stock of Swiss bees, and am informed that four days by rail would bring them to London.—T.

BEE-SWARMING.—A very singular circumstance occurred on Tuesday morning. A man named Blight, seeing a swarm of bees at the top of St. Sidwell's, Exeter, plucked a bough; and, strange as it may appear, stood in the road, and endeavoured to attract them to it. They flew towards him; but, instead of pitching on the leafy bough, they clustered inches deep on the man's head, face, neck, and hands. Many people, seeing this, became alarmed; but the man, knowing well the habits of bees, stood perfectly still and composed, and directed some of the bystanders to procure a hive, saying that if this were done the bees would doubtless be attracted into it. A hive was obtained, and the result was as anticipated. The bees forsook the man for the hive, and they were restored to Mr. Elworthy, the owner. It is a remarkable fact, that although the bees stuck to the man for a quarter of an hour or twenty minutes, they did him no injury. Had he moved or become agitated he would have been severely stung, and in all probability death would have ensued. —(*Exeter Flying Post*.)

OUR LETTER BOX.

BEST BREEDING AGE OF SPANISH FOWLS (A. Z.).—We sent your query to one of the most successful breeders of Spanish, Dorking, and Game fowls. The following is his reply:—"My experience would lead me to say that all fowls, as a general rule, breed better in their second and third years than at any other time. A difference of age between cock and hen is desirable. An old cock and young hens, or a young cock and old hens. Some of my best prize birds have been bred from pullets—that is, from birds one year old; though that is against the general opinion. I have, however, only adopted this plan now and then. Probably a cock is in his greatest vigour from eighteen to thirty months old. After thirty months I would give him pullets or hens younger than himself; but up to that time it does not matter whether his hens are old or young."—A LOOKER ON.

HATCHING BANTAMS (H. R.).—So far from being too late, it is the best time if you want them to be small choice birds. We breed many, and have none hatched yet.

COCK WITH DISEASED COMB (Grey).—The "soft pulpy matter" is the result of ulceration. Wash it with soap and water, and rub in mild mercurial ointment, giving a gram of powdered sulphate of copper daily, mixed thoroughly in soft food. Let the bird have abundance of green vegetable food.

DISEASED CHICKENS (Rev. E. C.).—From your second note we fear they have the gapes. We have been told that a little sweet oil forced down the windpipe by a small syringe kills the worms which are there and are the disease. In such a situation as the windpipe, any remedy is difficult of application.

SILVER-PENCILLED HAMBURGH CHICKENS (Rev. D. B.).—If thrifty, hatched April 9th, they ought to be quite ready for exhibition at the Crystal Palace. All hens require an occasional rest. Do not feed them highly.

SALE OF HONEY (A Subscriber, Cornwall).—There are many dealers in honey in London; but, perhaps, you cannot do better than apply by post to Messrs. Neighbour and Sons, whose address, as you will see by our advertising columns, is 127, High Holborn, and 149, Regent Street.

LONDON MARKETS.—JULY 25.

POULTRY.

The trade is gradually falling off; but, as the supply is small, there is not so great diminution in price as we have sometimes noted.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls	5 0	to 5 6	Turkeys	0 0	to 0 0
Smaller ditto	3 6	" 4 0	Pigeons	0 8	" 0 9
Chickens	2 6	" 3 0	Guinea Fowls	0 0	" 0 0
Geese	6 0	" 6 6	Rabbits	1 4	" 1 5
Ducks	3 0	" 3 3	Wild ditto	0 8	" 0 9

WEEKLY CALENDAR.

Day of Mnth	Day of Week.	AUGUST 2—8, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
2	Tu	<i>Astelma speciosissimum.</i>	30.124—29.892	88—50	W.	—	26 af 4	46 af 7	59 8	4	6 1	214
3	W	<i>Schotia speciosa.</i>	29.813—29.780	81—43	S.W.	.01	28 4	44 7	13 9	5	5 57	215
4	Th	<i>Schotia tamarindifolia.</i>	29.951—29.873	80—57	S.	—	29 4	43 7	29 9	6	5 52	216
5	F	<i>Tecoma capensis.</i>	29.975—29.915	81—46	S.W.	—	31 4	41 7	49 9	8	5 47	217
6	S	PRINCE ALFRED BORN, 1844.	30.277—30.105	81—37	W.	—	32 4	39 7	16 10	9	5 41	218
7	SUN	7 SUNDAY AFTER TRINITY.	30.371—30.348	79—37	E.	—	34 4	37 7	51 10	9	5 34	219
8	M	<i>Adamia versicolor.</i>	30.357—30.288	78—37	S.W.	—	35 4	36 7	38 11	10	5 27	220

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 74.5° and 51.2°, respectively. The greatest heat, 92°, occurred on the 2nd, in 1856; and the lowest cold, 36°, on the 6th, in 1833. During the period 110 days were fine, and on 114 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

THE conservatory borders will now require liberal supplies of water. Faded blossoms to be constantly removed; straggling growth and exhausted stock to be cut previous to making a new growth. As the autumn is fast approaching, the sooner the new growths are encouraged the better, that they may have sufficient time to mature them. All greenhouse plants will now be benefited by exposure to the natural atmosphere: the dews are more refreshing and invigorating than artificial moisture or the application of the syringe.

Finish *potting* all specimen plants; for if left until later in the season they will not have sufficient time to fill their pots with roots, and, therefore, will be liable to suffer from stagnation of water at the roots. No position can be worse for a plant than that of surrounding it with fresh soil for months when the roots should be in a comparatively dormant state.

PELARGONIUMS.—Continue to head them down, and to propagate the cuttings, which will now strike freely in a sunny situation in the open ground.

STOVE AND ORCHID-HOUSE.

Much moisture and free ventilation will be necessary here during warm weather. The young plants of *Euphorbias*, *Ixoras*, *Poinsettias*, and other such stove plants, to be rendered bushy by stopping them betimes. The *Aschynanthus grandiflorus*, *Aphelandra cristata*, *Eranthemum pulchellum*, *Justicias*, and any others that are intended for the decoration of the conservatory in the autumn and early part of winter, should be carefully looked over, and shifted without delay if they want more pot room; the shoots to be tied out thinly, and to be exposed to as much sun as they will bear without scorching the foliage, to induce stocky growth. Nothing is more injurious to stove plants than to keep them growing late in the season, and thus to prevent the ripening of the wood, which will render them more liable to injuries in winter and more unproductive of flowers the following season.

FORCING-HOUSES.

MELONS.—The plants on which the fruit is ripening to be kept rather dry at the roots, with free exposure to the air in favourable weather. A steady bottom heat to be kept up to the late crops.

PEACHES.—If the lights have not been taken off the early-forced houses, it would be advisable to remove them as soon as possible, that the air, rain, and dews may have free access to act both beneficially on the trees and to keep down red spider. In those houses which have been treated as advised in former Calendars, the principal object now should be to get the wood properly ripened. The late houses to be treated in a similar manner when the fruit is gathered. Where the trees in peach-houses have been recently planted, and are not yet in a bearing state, the shoots will require to be trained carefully, and insects to be kept down.

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PINES.—The plants growing in beds of soil to be carefully attended to with water, giving at each application sufficient to penetrate the whole body of soil, as it frequently happens that the surface is moist while the bottom is quite dry. Pot a portion of the strongest successions for early forcing next season.

STRAWBERRIES.—Continue to lay the runners of the kinds you wish to force in pots until you have a sufficient number.

VINES.—Muscats, now beginning to ripen, will generally require a little fire heat to push them on; when ripened in good time they are better flavoured and keep longer than when the ripening process is delayed to a late period of the season. Continue to remove the stray laterals that begin to shade the larger leaves; to be done a little at a time, as disbudding on an extensive scale is prejudicial to fruit trees. The young Vines in pots to have every attention, to secure as much growth and healthy vigour as possible while the growing season lasts. Allow all young planted Vines to ramble freely without stopping them so closely, as is frequently practised. Before wasps and flies do much mischief to ripe Grapes, coarse canvass should be fixed over the top lights and front lights that are opened for the admission of air. Remove decayed berries as soon as observed, and keep the house containing ripe fruit dry and free from dust.

WILLIAM KEANE.

ROSES AFFECTED BY SOILS—PILLAR ROSES.

THE best hit about Roses which has been recorded these many years is that by Mr. W. P. Ruddock, manager of the York Cemetery, at page 243. That plan is also the best way for amateurs to work Roses on the Manetti stock. Mr. Rivers, the godfather of Manetti, recommends the worked part of the Roses on Manetti to be buried in the ground. The Manetti is a vast deal stronger than our Dog Rose, and grows to its full size in one-quarter of the time it takes the Dog Rose to effect the same growth—a fact, as sure as fate, which I learnt by accident last April, at that sale I spoke of by Mr. Wilmore, where two rows of Manetti could neither be sold nor given away. The ground of that nursery was broken up five years since from a common, which had not, probably, been disturbed since the flood. Heath and Gorse, Broom and stunted Willows, were the natural plants all round. This was grubbed, and cleared, and burnt on the spot; the ground was then trenched, divided off into nursery quarters, and a sickly stock from somewhere else was brought there and planted on this virgin moorland five years last spring, if I recollect rightly; it is certainly not more than six years since. The man who did the work is still in Surbiton, and could tell to an inch every stroke he made. He planted the two rows of Manetti from some nursery; they were of the usual small size of nursery Rose stocks of that kind. He budded them near the ground the next summer, or the second summer, after planting; but a host of suckers came up from under the budded part, which overpowered

the man (Mr. Spong) and his buds. These suckers made the huge bushes up to ten feet high, which no one would buy, and which I bought the day after for 2s., and handed them over to Mr. Ross, another of our celebrities about Surbiton; and told him he ought to make ten thousand cuttings of them. The part that was budded was still alive in most of the plants, and some of the Roses were yet alive, and from one to four inches long; while five, six, and seven shoots could be counted on each plant sufficiently strong to make stocks for fountain Roses—that is, stocks from six to nine feet high, and strong enough in proportion; and I venture to say that such a sight was never seen of Dog Rose stocks.

Of all the plants I ever cultivated, the Rose and the Strawberry are the most unaccountable. The *Downton* Strawberry was the best flavoured of all the kinds raised in my time. In 1833 I renewed a bed of that Strawberry, trenched, levelled, and added more soil to that part of the garden, and I never could grow the *Downton* after that. I failed most completely to fruit the *British Queen* Strawberry, or to keep it more than half alive. The next two gardeners who succeeded me did not fare better; for the very last communication I had from Sir William Middleton was asking if I could suggest how they might fruit the *British Queen*. I failed as completely with the *Manetti* on its own root, and as a stock at the Experimental Garden, not more than a mile from where it grows four times faster, and equally as strong as any Dog Rose whatever.

Those who read the early volumes of THE COTTAGE GARDENER will recollect the glowing accounts I used to give of the *Gloire de Rosamene* Rose on the chalky soil at Shrubland Park. Here, however, it does even worse than the *Manetti*; and there are many more Roses like it in that respect. They are so affected by the soil, that unless they are on their own roots, or on some particular stock, there is no getting them along at all; but the *Rosamene* is the only one yet which does not pay on its own roots hereabouts.

There is a splendid Rose called *General Castellane*, a brilliant crimson, which has been exhibited at all the Rose shows for the last few years; but I never had it, and the accounts of it in the different Rose catalogues are quite contradictory. Among gardeners it is the same; but on the authority of an excellent judge I mentioned it from the Hanover Square Rooms as a fine pillar Rose—and when I mention a pillar Rose I must be understood as meaning the pillar Rose on its own roots. The common old Moss Rose will make a splendid pillar from eight to twelve feet on its own roots. Some that are of that size I had measured, and reported in THE COTTAGE GARDENER, at Bank Grove near Kingston. Nine out of every ten of all the Perpetual Roses would do the same, and *General Castellane*, no doubt, among the rest. My friend said it is a very strong grower, and would reach up to eight feet almost as fast as the common Moss, provided you plant it on its own roots. But the reason why I mentioned it so particularly, out of others that are just as good, was to see if I could raise a question about it and similar kinds that are much affected by soil and situation. That question has started. A lady from near Durham asks if it will grow there, eight feet high, against a wall which is a mile and a half from the sea? No one can be sure whether it will or not. Mr. Cranston, the great Rose-grower near Hereford, marks it in his catalogue among the very best, but says, "Its habit is very dwarf;" and, "Should the soil not be of the best description for Roses, those marked as dwarf-growing varieties should be avoided, or only chosen to be grown on dwarf or dwarf-standard stocks." The Messrs. Paul & Son, of Cheshunt, have repeatedly, and this year also, marked it as a robust grower—that is, making strong shoots, but not growing so long as some others. They, too, place it among the very best. "A brilliant crimson, large and full," which it certainly is. Mr. Rivers placed it among his second-best Roses in 1858, and says it

is "very delicate." Mr. Francis always places it among the best exhibition Roses in his catalogues, without saying whether it is a dwarf or a giant. Mr. Lane the same; and Mr. Turner, of Slough, has it among "the best varieties now grown." So, you see, it is a good Rose at all events. But how are we to account for its being on a par with the Moss Rose, a robust grower, a very dwarf and very delicate kind? The whole secret is in the soil. One man told me in the Hanover Square Rooms, it was a "thundering good Rose;" but if he had said "lightning," I should have been just as wise. When we take up a Rose for the ladies, we ought to be very particular; and what I would advise our fair correspondent from Durham is, not to plant *General Castellane* against that wall for fear the soil might not be just of the right sort; but I would strongly advise her to have one or two dwarf plants of it, and on its own roots if possible, to be planted in a Rose border, and I shall tell of other Generals which are sure to rise up against her wall, and give her all the pleasure which any known Rose can afford. Last April I had three cuttings of *Général Jacqueminot* struck for me, and in June I planted two of them; one foot apart, to make a pillar Rose; and the third I planted against a wall twenty feet high. If it should ever get to the top it will be a wonder: as it is, no crimson Rose is more lovely to my eyesight. It is not so double as *Castellane*, but not a bit the worse for that. There was an attempt, at first, to class it among the second best of its kind; but that would not do—there would have been a rebellion at the shows at such monstrous taste. *Général Pellissier* again is as lovely a Rose as one could pluck; but very likely a south wall would be too hot for it, as the petals are not so stout as some of them, and the delicate light-rose colour might be apt to get scorched in June, like some of my best *Nosegay* Geraniums; but I do not speak from experience about *Pellissier* standing the sun on a south wall. But *General Simpson* would be sure to succeed and do in all weathers against a wall. It is a peculiar soft red, as in some of the finer Ten-week Stocks, and, like *Pellissier*, is finely scented. *Lord Raglan* is a splendid pillar Rose, deep crimson, and mottled with scarlet—just the very best colour to stand the sun well. *Jules Margottin* is one of the finest pillar Roses in the world, "it blooms well, but does not attain any height" with our fair correspondent at Durham; but that must be from being a worked plant, and the soil does not suit the stock. After such Rosés get common, any man who works them otherwise than on their own roots should be taken up for wilful murder. *Jules Margottin* not attaining to any size!

"*Madam Rivers*," also, "does not attain any height with this lady at Durham. Surely her Roses are on the *Manetti*, and are strangled or starved. *Madam Rivers* is one of the best growers we have, and would soon reach the top of an eight-foot wall, if it had its free liberty on its own roots. I am more than satisfied that ten thousand are just as badly off for Roses as those who have these pillar Roses dwarfed to the starvation point on the *Manetti* stock; and that brings me back to where I began—to the very economic point of the *Manetti* stock. Graft it in March, but, first of all, order lots of the *Manetti* stock at the end of November—not sooner, as it is a late grower; prune the heads down pretty close, and make cuttings of the shoots; then put the stocks in by the heels, anywhere in the garden, and about Christmas, during fine, open weather, cut your grafts from the best Roses, taking the longest shoots, without shortening them. Put them in by the heels also, but under a north wall, so that the mild weather in early spring does not move their sap; as it is best for all grafts to be a little behind the stock, in the movement of the sap, at the time of grafting. In March do as our correspondent, Mr. Ruddock, did—take up the stocks, and take them indoors, and graft them as he did, down close to the roots, and after planting out, the stocks will soon get strangled, instead of the grafts. The grafts will soon root on their

own account, and will soon forget the dangers and difficulties about suckers, and all that sort of thing.

I would undertake to prune half the Roses in Yorkshire, if more than one-half of Mr. Ruddock's grafted Roses of last March are not pretty well rooted themselves by this time; and the rest are sure to be so before the season is out, because he went to work the right way. He grafted, and buried the grafted parts the moment he finished. It was just like putting in so many cuttings, with this difference, the sappy part of the stock kept the cuttings more in play till they rooted than any compost could do, and the plan is far better than that of burying the worked part of a year-or-two-old worked plant. But the meaning of the move to get the whole of the Manetti under ground, is to get rid of it without knowing it; to keep your Roses in sap till they have time to make roots of their own. Another great advantage of grafting by the fireside is this—you need never fear about suckers; you handle the stock, the lock, and the barrel, before you put on the charge, and if you see an eye down there, or suspect a lurking one by the side of a scar, you will be sure whose fault it is, or was, if such eyes are not knocked out on the instant. We all must know the nurseryman was not in fault, for, at the rate of a few shillings the hundred Manetti stocks, he could not get broad and cheese out of them if he disbudded his cuttings in the first instance.

I recollect in the year 1834 or 1835, one of the largest and most respectable nurserymen on the Continent sending over word to this country that the roots of the common large China Rose were, or were then, the best stock in the world for *grafting* Roses on. He took them of the size of a pen-holder, cut them into six-inch lengths any time in the winter, and grafted them in-doors in bad weather. He made one remark which particularly struck me at the time. He said the roots of that China Rose, at the age and size he used them, were less given to make suckers than the roots of any Rose he knew. What struck me was, whether that Rose was naturally less given to suckering, or whether it was not rather from his using them so young, as root-eyes were not yet formed on them. I recollect setting this down for a lawful experiment; but the thing went overboard in troubled waters, and remained there till it was fished up cleverly last week by the manager of the Yorkshire Cemetery. But who will prove the fact now? *Smith's Yellow Noisette* Rose was then selling at half a guinea the inch, and every inch was grafted on the roots of all kinds of Roses.

D. BEATON.

WEEDS AND THEIR EXTIRPATION.

ONE thing still remains of an unworthy character, as pertaining to some British gardens; rank weeds are still suffered to deface many from which better things might be hoped. It seems strange to enter any garden about which we have heard much, and from which, by consequence, much is expected where enormous sums have been expended in carrying out the mechanical portion of the art, and to observe that there is not that deadly hatred of weeds which should exist in the heart of every true gardener. But is it simply a gardener's affair? I have known numbers of gardeners during the last fifty years; and out of the whole, counting them as real professionals, I cannot remember a dozen who really wished to indulge in the revelry of weeds. Their extirpation, of course, involves labour; but labour ought to be had, fairly commensurate with the object in hand, or why attempt gardening?

But when an employer grants a due amount of that necessary aid, he has a perfect right to expect that the gardener should call every economic practice into action, and so to lay his plans as to turn all labour to the best account. Indeed, where much labour is concerned, the possession of good administrative powers constitutes nearly one-half of the gardener's aptitude and talents.

As to the effects produced by weeds, let us examine them. Who will deny that they exhaust the soil? What will produce a group of strong-growing weeds would produce bouncing Cabbages. But this is not all: they injuriously shade crops, and cramp them of their legitimate boundary; and this is not such a light affair as some would seem to imagine. If any one doubts as to the weight attached to such considerations, let him, when he places his fancy Geraniums or other flowers or plants on the stage or shelf, place some rude-growing things amongst them, and let them elbow it out, and observe the results.

There are several ways of attacking these pestilential scoundrels, such as hoeing, hand-weeding, salting, digging, and, perhaps, another mode or two; and of these I wish to speak. We all know that most gardening operations depend on the weather, at least out-door gardening. Here we stand on a similar footing to farmers, only our little affairs are more highly sublimated.

In hoeing those on the lighter soils, people frequently prefer the Dutch hoe, and in many such cases it deserves precedence; but on stronger soils it is scarcely able to compete with the draw hoe. There is, however, always this difference, that the Dutch hoe leaves its work untrodden: not so the draw hoe. But hoeing, after all, is but a flattering process under ordinary conditions of the atmosphere. In fact, in three-fourths of the cases we have seen it is only a modification of the ordinary mode of transplanting. For my part, I consider the rake own cousin to the hoe; or rather the hoe should play jackal, and the rake lion. In most cases, I advise the rake devouring what the hoe has disturbed; for, indeed, it is not merely scratching away weeds, but, under judicious management, a kind of second hoeing,—a disturber.

But we have, in this case, enemies of different habits to deal with; there are temporary weeds, and there are those which are of such a perennial and enduring habit, that they require a pertinacious opposition to keep them at bay, not to say entirely extirpate them. We cannot for a moment think of placing a Groundsel, a Chickweed, a Shepherd's Purse, or a Dandelion, on the same footing as Couch and the old *Convolvulus arvensis*, or Bear-bind. These latter foes are, some of them, of a very enduring character.

We must remember that our English summers are of a fluctuating character, and that our policies must be shaped accordingly. It is of little use hoeing in moist weather; and if one of those dull and damp periods overtake us, the best way is to have recourse to the spade. This has been my practice for years, and I know by experience that it requires but little more time to "point in" the weeds than to hoe and rake them; which in such periods is apt to be a dawdling process. I have found it of immense benefit to the soil; and this, together with deep trenching of every plot about once in three years, has quite renewed our old and hard-worked kitchen garden; which, about a dozen years since, had begun to assume the appearance termed "worn out." But, then, let it be taken into consideration what an insect-destroying process it is; those who will pursue such a course of practice will not long complain of slugs. I before adverted to those pertinacious intruders called Couch and Bear-bind: not many gardens are infested with these, but I must confess to an occasional irruption from the latter, and have found it difficult to eradicate. Of course, if any one can fork out every root there is an end of it at once; but I have never seen this thoroughly carried out: every little morsel will grow if clipped into fractions. But it is not so difficult to eradicate it by what I may term a bleeding process. Most persons are aware that the Bear-bind, on being wounded, emits a milky fluid; and this wounding, repeated during two seasons, at last wears out the root.

As for Couch Grass, we have to depend in the main on carefully forking it out during the rest period; every

pains should be taken when the ground is clear of crops to eradicate every vestige.

As to weeds being allowed to seed, this is, indeed, a pernicious practice; the old saying of "one seeding, seven years' weeding," is not only quite true, but much below the durability, or, rather, vitality, attached to many kinds of weeds. Only behold the Charlock of our fields, there is little doubt in my mind that this seed will endure for centuries in the soil. I once heard an old and respectable gentleman affirm that, in his younger days, he knew a case in which an old church in some part of Yorkshire had to be pulled down, and rebuilt on a fresh site. The church had been standing more than a century, and the old site underwent a ploughing, and instantly produced a full crop of Charlock. There are those who believe in what has been termed spontaneous generation, but I am not one; and I am well satisfied that wherever there came up a Charlock, there had been a seed, the produce of a distant generation. I have a plot of ground in the gardens here (Oulton Park), from which every year I obtain a full crop of the American or broad Cress by simply digging it over in divisions. I never sow a grain of seed. Now about twenty-four years since a crop of American Cress was suffered to run to seed on this spot: hence the constant recurrence of it. One thing, however, I observed—the crop comes up thinner every year.

Salt has been applied by some in kitchen gardens in order to extirpate weeds; but, although highly eligible for walks, I never could find much advantage as to the soil; the fact being, that if we apply salt enough to destroy all weeds, it will by the same rule injure the succeeding crop. The practice of first-rate market-gardeners furnishes a lesson as to weeds; we shall not find many seed-weeds under their high culture.

I spoke before about the use of the rake, and I again refer to it, in order to urge its use whenever practicable after the hoe. It is great folly to set a labourer to hoe a crop of weeds in suspicious weather, and to leave them in a state of transplantation, with the almost certainty that the ground will be as weedy as ever in another fortnight. The injury done to rising vegetable crops in spring by small weeds is frequently of a serious character. Indeed, it is amongst rising crops that their injury is the greatest. They not only rob them of their food, but so overlay and choke them, that if a timely rescue is not at hand, the crop becomes injured beyond the bounds of reparation. Another point connected with this, is the suffering of the young crop from intense sunshine when they are delivered from their overgrown enemies. I have known such delicate things as young Carrots completely spoiled by such proceedings. R. ERRINGTON.

HINTS ON FIG CULTURE.

"This place (Kilnarnock) is about seven miles, as the crow flies, from the shore of the coast of Ayrshire, one of the western counties of Scotland. The land is of a stiffish nature in the fields, producing excellent crops of Oats and Wheat. My house is placed with the back wall facing the south, to which it is fully exposed; and I have a Fig tree trained upon the back wall. It has been planted six years, and, hitherto, has produced nothing but leaves, which it does in great luxuriance. This season I adopted the course mentioned in THE COTTAGE GARDENER, and scooped out all the points of the shoots in the month of March. By-and-by there was a beautiful appearance of fruit, and the Figs swelled on till about the size of pigeons' eggs, when they have all dropped off, and the foliage has again got the mastery. The tree gets no manure, and the ground is well drained. Please give a hint how it should be treated. It is given to an over-luxuriance, and that notwithstanding about two years ago I cut two or three great slices out of the bark, thinking to check it. The Fig is little grown here, and the gardeners do not seem to know much about its treatment."—A. B.

THIS letter from Kilnarnock I consider a fair opportunity for a little ventilation on the above subject. If the contra-

dictory advices given in this and other works on gardening are to be taken as criterions of sound practical knowledge, then I fear the ignorance implied in the last sentence is not at all confined to any one part of Her Majesty's dominions. I by no means pretend to know much myself. I have just a fair idea under what treatment the Fig does best with me, both in-doors and out of doors. The latter I have not lately paid quite as much attention to as I used to do, as from plants under glass I generally have Figs until the season is too advanced to give them a good flavour. I by no means consider that I have hit on the right method, and that other methods are wrong, because there are many modes by which the same result may be obtained, if each mode is carried out fairly from its commencement to its close. Failures often proceed from attempting to combine two separate and distinct modes of practice.

One of the most common advices you will meet with now-a-days, is—"Stop your Fig shoots again and again when they make from three to six joints of fresh wood." Not long ago, in the presence of one of the ablest writers for this work, I noticed some Fig plants as bushes in a house so stopped, and took the opportunity of saying, that this stopping theory, if generally practised, would lead to plenty of leaves and shoots, and but little fruit. There are some stubby kinds that stand the stopping process pretty well in houses, if done with judgment. I lately saw an example of this advice being carried out on trees out of doors, and my opinion is, not only would no advantage be gained this season, but the crop next year would be rendered very problematical.

Let us look at this stopping process as respects in-door treatment. The more the roots are confined, in pots or boxes, the better they will stand this stopping process; but, on the other hand, the stubby, short-jointed growth, to a great extent, renders the stopping at so many joints unnecessary. I do not know if it were our advice "A. B." adopted when he scooped out the terminal buds in March; but, so far, I approve of the process. Now, for instance: here are nice little bushes in pots or boxes, or flat plants trained to a trellis, and we start them into growth in February or March. The first signs of growth on the shoot of last season—well ripened before its close, and leafless during the winter—will be seen in the extension of the terminal bud. Ere long the small fruit begin to show at the joints where the leaves stood. By the time the terminal bud is an inch long I generally cut it across with a knife, or nip it across nearer the base than the middle with the finger and thumb. The object of this stopping of the first growth is to throw strength into the young fruit for the first crop, making the fruit, in fact, the chief thing, instead of mere wood-growth. For want of this stopping I have seen a great part of the fruit drop, and shrivel up when not much larger than Peas. The rapidly growing shoot at the point monopolised all the vigour. So much, then, for securing the first crop where heat is used under glass. Note here in passing, that so far as my practice extends, it is of little use, so far as making the fruit show on last autumn's shoots, or keeping them when they do show, to stop the young shoots as mentioned above when they get several inches in length.

Now for the second crop, for that is a great object where Figs are forced; and unless forcing is commenced very early, it is seldom that more than two crops are ripened, and by commencing at Christmas, and getting three crops, the plants seldom do much as a first crop early the following season. Two crops only under glass are what are generally taken. The stopping the points of the shoots above referred to not only gives a stimulus to the young fruit, but it often causes a shoot to burst from their base, where otherwise it would not have been likely to come; and from the stopped part at the point, instead of the one shoot, some four or five, or more, will frequently present themselves. These should be thinned out, so as to leave only as many as can obtain a sufficiency of sunlight: the strongest for a second crop; the very weak ones to grow on for the first crop the following year. Now, as regards these strongest young shoots left, follow the more popular advice of stopping them when they have made three or four joints; and if the roots are very much cramped for room in pots and, consequently, the joints are close upon each other, no harm will ensue, because the young fruit will be formed in the axil of each leaf almost as soon as the leaf is developed to half its full size; and this stopping not only assists the small incipient fruit, but gives a stimulus to the first crop now swelling freely. But stop luxuriant, free-growing shoots in the same way, and before you can discern the incipient fruit, and most likely you will, ere long, see young shoots coming from the axils of the

leaves instead of fruit, and thus your second crop will be looked for in vain. Under such circumstances, therefore, instead of joining some friends in saying, "Stop Fig shoots when they have made from three to six joints of fresh growth," I would prefer saying stop *only* when you see the signs of fruit at the joints nearest the base. If they do not show, it is better to thin out altogether.

This stopping and thinning give an impulse to the weaker shoots to grow and get ripe before autumn. The thinning out of the bearing shoots will also give these more room, and these we prefer to leave unstopped until fresh growth commences the following season. Provided the Fig is well drained, and the room for roots rather curtailed, the roots should never feel drought from the first appearance of the fruit until the last Fig is gathered. After that, comparative dryness of the roots will assist the maturation of the wood, and also afford a resting period to the plants.

With some exceptions in the southern counties, it is rare that in these islands the Fig tree ripens more than one crop in the open air. In the centre of Scotland, such as in Perthshire, the Fig ripens well in good autumns against a wall, especially if protected from severe frosts in winter. From what I consider would be the extra amount of moisture in Ayrshire, the Figs, in addition to protection, would need more stunting of room at the roots to check the extra luxuriance. If our correspondent did not protect his trees at all, we consider the excellent show of fruit to be entirely owing to the extreme mildness of the last winter. In order to simplify the matter, with the exception of the terminal bud in spring, we would advise no regular, nor any stopping of Fig shoots in summer, on trees out of doors. If the shoots are too thick and strong, thin them out, and that will ultimately tell upon the extra vigour of the root action. If still too strong and rampant, lift the trees, or cut the roots as soon as the fruit can be got in autumn. A border well drained, eighteen inches deep, and thirty inches wide, will be sufficient for trees intended to mount to the top of a twelve or an eighteen-foot wall. The above rule is based upon the fact, that it requires the wood of this season to be well exposed to all the sun it can get, in order that it may be sufficiently matured for fruit-bearing the following season; and that under ordinary and favourable circumstances, the stopping of the shoots in summer would, to a certain extent, help the swelling of the fruit on the older wood; but it would also encourage the production of wood that would not have a sufficiency of sun to mature it; whilst the part of the shoot below where it was stopped would throw out more shoots that would be useless for their greenness, or show young fruit, which, perhaps, might swell as large as Walnuts, and then perish in winter. Even with covering in winter, it is rare that fruit can be preserved so as to swell in spring, or ripen in autumn, if the fruit should be larger than the smallest Peas. For a good crop the following year, I would prefer that the young Figs should merely show, or be little larger than good-sized pin heads. The less they are the better will they pass through the winter with or without protection. When in September, or thereabouts, such fruit are larger than fair-sized Peas, it is best to cut them off by severing the small footstalk, and a younger fruit will frequently form at its base. For all outside culture, all stopping of shoots that encourages the production of young shoots that cannot be matured, and young fruit that, if not removed, must fall in winter, ought to be avoided.

There is no general rule, however good, but may be attended with specific exceptions. To check extra luxuriance and long-jointed wood, the best mode is to replant, shorten roots, or curtail root action. Sometimes these operations are not very easily done, owing to circumstances; and it is found that manipulating the top of a tree is a thing easier done than getting down about the roots. The curtailing the root action tells more quickly; but the same result may be more slowly effected through lessening the surface exposure. Here, for instance, is a tree much too luxuriant; every young shoot like a person's thumb, saying nothing of a medium-sized finger. Well, they have been pretty well ripened, and when the terminal bud is cut through after it has grown an inch or two, and a mass of weaker young shoots appear,—but looking as if they would be too long jointed and rampant again,—choose the weakest for permanent shoots; leave the strongest to grow from three to six inches, just not to check growth too much at once, and then nip the points out; and though these shoots will either throw out younger shoots or fruit at every joint which will be needless, that is of no importance, for as soon as the weaker unshortened ones grow, these stopped ones, with fruit on them

or not, may be clearly and wholly removed, to make room for the weaker shoots that are to fruit next season.

There is another case in which, after the first spring stopping, the young shoots may again be stopped early in summer, and that is where more wood is wanted to fill a vacancy.

Once more. When we wish to arrest growth and hasten maturation of the wood,—say towards the end of September, it might be desirable, at times, to nip out the point of a growing shoot, and especially when the doing so would not start the fruit prematurely. For all out-door culture, let it be clearly borne in mind that every young fruit that shows even in autumn, and gets bigger than a Pea, is just very likely to be so much of the fruitful energies of the plant exhausted and gone. Hence, as a general rule, a nice, stubby, well-grown, well-ripened young shoot of this season should not be stopped until it has rested in winter, and is commencing to grow the succeeding spring. The fruit formed on this season's growth will not ripen this season, and every mode of culture, stopping, &c., that encourages the protrusion of these fruits, so as to be larger than Peas or pin heads before winter, ought to be avoided.

Keeping these facts with us, I by no means say they will always be found facts with others. I would come to the conclusion that the failure of "A. B." is owing to the extra luxuriance of growth, which might unduly rob the fruit, and the want of moisture at the roots when the fruit was swelling. Of course, moisture must ever be proportioned to growth and leaf exposure; but no fruit is more sensitive, as respects want of moisture, than the Fig, from the time the fruit shows until it is gathered.

Figs are more cultivated every day; and opinions based on practice, either confirmatory or opposed to the above, would be highly valuable.—R. FRIS.

ENGLISH ELMS AND SCOLYTUS DESTRUCTOR.

THERE are many and great changes which come o'er the spirit of our time, and which truly astonish us, more particularly as to the minuteness of the cause and the greatness of its effect. There are few of our finest trees with which we are so familiar as we are with the English Elm—a tree cherished by our forefathers, and which has descended from them to us, characterised by luxuriant and green old age, and adorned with extreme picturesqueness and beauty. These trees, which ever approximate to our dwellings, could many a tale unfold of joyous mirth and deep, dismal affliction. They have waved their branches over the advent of our friends, and witnessed the departure of those most loved and valued. Beneath their shade our young hearts have poured forth a tender tale of affection to be reciprocated; and to them we resort when, far advanced, we muse back on all the tumultuous scenes of the busy life we have passed. We die—still the old Elm remains, and buds with fresh luxuriance over our successor. This is, and has been, the tale of the long course of existence of such trees; and when we reflect upon the uses which are made of them after they are cut down, and remember that the friend of our life is also our friend in death, we think we have established for the Elm a claim upon our sympathy far beyond that of any other tree.

But, alas! our verdant friend is not exempt from the evils which other vegetables are prone to. It has suffered almost to extinction in many of the continental cities and towns during the last few years, and isolated cases have occurred in this country previous to 1858; but in that year a multiplicity of cases happened in this country simultaneously, and we fear that, should it continue to progress in the same ratio, we may have to mourn the loss of this our very favourite tree. We think it most important to ventilate the question, What must we do to prevent the ravages of *scolytus*? and we hope to have suggestions from your various correspondents, because "in the multitude of councillors there is wisdom."

The *scolytus* appears to have been little known in this country, although, according to M. Ardouin, the promenades of Boulogne-sur-Mer, Montreuil, Rouen, Havre de Grace, Caen, St. Loo, and Granville, have for years been sadly ravaged by it.

London says, "The female insect, about July, bores through the bark until she has reached the point between the soft wood and the inner bark. She then forms in the latter a vertical channel, usually upwards of two inches in length; on each side of which she deposits her eggs as she advances, to the number of from twenty to fifty in all. It appears probable, that, after doing this, she dies without making her way out again, as she may

often be found dead at the end of the channel. About September the larvæ, or grubs, are hatched, and they commence feeding upon the matter of the inner bark at the edge of the channel, and in a very slight degree on that of the soft wood opposite; advancing as they feed into courses at about right angles from the primary channel on each side of it. The true food of the insect is the inner bark, and the erosion of the soft wood is so slight as to be perhaps merely accidental. The course of each individual larva on each side of the primary channel is about parallel to the larva next to it, and each forms a channel in its feeding that is enlarged as the larva is increased in size. When each larva has finished its course of feeding it stops in progress, turns into a pupa, and then into a beetle; after which it gnaws a straight hole through the bark and comes out. The beetles begin to come out at the latter end of May, the year following that in which their eggs were deposited. The sexes afterwards pair, and the females, bearing eggs, bore through the bark; and so on from generation to generation, and from year to year."

The erosions of the female insect and the larvæ result in cutting off the vital connection between the inner bark and young wood; and when such erosions have become numerous, the tree dies from mere prevention of the ascent and descent of the sap.

It has been said that the scolytus does not attack healthy trees, and it does not generally do so. But we have seen the larvæ attack vigorous young trees for food, gradually weaken them, and bring them into that quiescent state of decay which the female beetle chooses for the deposition of her eggs.

The transmission of this pest from the continent to this country could only have been by the winds blowing from infected quarters. And it is strange, that some twenty years ago we had one tree, a fine Elm, attacked. I advised its being felled, the bark was burnt, and we saw no more of the insects till 1858, when the trees in St. Giles', Oxford, were simultaneously attacked by the same insects; and many of our trees gave unmistakable signs of its presence, and we fear we shall have to record much loss of these fine trees this year; as many of the surrounding trees appeared weak and sickly in the tops, bearing the appearance of being seized by the larvæ for food, the usual preliminary for the deposition of the eggs of the female insect.

But to return to our remark, that the scolytus does not attack healthy trees. We deny the truth of this position. We believe it to have been advanced in the *Gardeners' Chronicle* by Charles Westerton, Esq., a gentleman of the highest attainments as a naturalist, but who seems to possess little evidence of the *Scolytus destructor*. The Editor, too, of that paper, endorses the doctrine and makes it law; but we must believe what we know to be facts. There was at Oxford, in the row of old trees infected, a young vigorous tree which shared the fate of its brethren, being seized upon for food; and when paralysed by the effects upon its inner bark, and thus weakened, becoming the nidus for the females to deposit their eggs in; and, in fact, dying from the attacks of scolyti alone.

When we take into account the great number of these trees which are constituent parts of our finest landscapes, no one can for a moment contemplate the bareness of our country *sine* Elms without a thrill of horror. And it is a theme worthy of occupying men of all talent, to discover a preventive remedy which shall rescue this doomed tree from its threatened destruction. In Paris, there are hundreds of dying trees in the Champs Elysées, many of them nearly divested of their bark—an operation performed for the destruction of the scolytus, but which seems pretty surely to destroy the trees also.

The application of coal tar has been recommended in these cases, but I have no experience of its application. It may, or may not, be effectual in arresting the progress of the insect. There can be no doubt, that while the evil is partial and local, the destruction of the individual trees is highly judicious, and we would urge this vehemently upon those readers of *THE COTTAGE GARDENER* who may have recently had a visit from these unwelcome guests. Let affected trees be cut down and burned.

All trees affected by scolytus will now be showing it by their sickly appearance. It should, therefore, be watched for; and as soon as the case is fully established, remove the diseased subject entirely, and burn its bark, thus preventing the migration of the insects to other trees. In too many cases the affected subjects will put in weighty claims to be spared; but all such considerations must not weigh against the general good, and you must be content to lose a few trees rather than compromise the welfare of the many which you may hereafter lose.

I have never seen this insect upon other species of Elms. I believe it to be peculiar to our English Elm. If any of your readers have found it attack other kinds of Elm, your pages will, I am sure, readily record an account of their experience. For in these matters the accumulation of evidence is very important, and one fact is worth many conjectural opinions.

I now take my leave of this subject for the present, hoping again to touch upon it at some future day, when I shall be further guided by experience. Every coming day will afford me an opportunity of watching the progress in the already-affected trees. Certain it is that the appearance of this insect is very mysterious; and it is indeed difficult to account for its appearance here twenty years ago, its disappearance since that time, and re-appearance last year, unless we suppose that we killed them all by burning the bark, and that we had a new importation of them in the year 1858.—H. BAILEY, *Nuneham*.

USES OF COCOA-NUT FIBRE.

ABOUT one half the refuse of the cocoa-nut outer cover is like mahogany sawdust, the other half is of small wiry fibres. A quantity of it wetted and put together in a heap (a cart-load for instance) would not get dried through in ten years, supposing the weather all the time to be as hot and dry as it was in June and July. This fibre is free from any acid, saline, or tannin principle. Worms do not like it; and snails and slugs cannot well crawl over it, as it sticks to them, the surface of it being as dry as powder when the weather is anyways dry. It is the best mulching stuff in the world; and two inches thick of it on a Vine-border would keep the surface of the border as moist as need be a whole season, with no danger about keeping the air or the heat of the sun from the soil. Every plant, bush, and tree, over whose roots a couple of inches of it are placed, will root up into it in one season, and every root will "fox-tail" in it. Very old sickly Yews, Hollies, Oaks, Cedars of Lebanon, and all manner of such trees, could be wholly renovated by bringing up thus young roots to the surface, on which rich soil might then be placed to feed these roots. There is hardly any feeding in the fibre itself; but being so very porous, so retentive of moisture that it cannot be burnt at all, and so free from taste, smell, and qualities which roots dislike; also, that it holds a sufficient quantity of rain water, from one rain to another, to keep the roots going; every kind of root runs freely in it, and feeds abundantly on the moisture it holds.

For plunging pots in summer, it is better than anything we know—no fungus, no worm, snail, or slug, bothers one in this stuff. Mr. Standish, of Bagshot, is the only wise nurseryman whom I know to use it thus for plunging. The stiffest clay land could be made as light with it as Wimbledon Common, and it is the best dressing for very sandy soil, to make it hold moisture. When it is mixed with the soil the sawdust part soon rots, say in two seasons, but the fibre holds good five or six years; and where much of it is used, the soil cannot be dug with the spade—a steel fork is the tool for it.

The fibre dressed out of the sawdust-like stuff is as good, if not better, than hair for all kinds of plastering, and it is freely used here for that purpose. If the fibre could be had as cheap and plentiful as flax, it could be as finely run out, and made into better, and much more durable linen, with a gloss upon it like silk.

All kinds of brushes are made of it here, from the tooth-brush for the Empress to the great water-brush in the stable-yard, and they are sold all over the world. String, twine, rope, and cable made of it do not "give and take" in wet and dry weather like our twine and ropes; but it is all spun abroad by some process so cheap that we cannot come in competition with it. Perhaps there are five or fifty thousand waggon-loads of the refuse from all this lying idle at Kingston. It will not pay to send it out, or even to load the carts; when you want it, therefore, send hands and forks to fill the carts. As much as a one-horse cart can hold, pressed down, and running over, costs 2s.: but for many purposes about a garden the load is worth just six times the amount. Some of it holds together in large lumps, and it must be pounded down to the state of common sawdust to make the most of it, which is easily done.

The more recent or fresh it is the longer it will last, and the better it is for pots and cuttings out of doors. An inch or two of the top soil mixed with it, half and half, are the proportion for Rose cuttings, and all kinds of cuttings; then put half an inch

thick of the most fibry on the top between the rows, give one good watering, then go to Italy or to grouse shooting, so you be home in time before the frost.—D. BEATON.

HARDY HERBACEOUS PLANTS.

As several correspondents have asked for information about these "old-fashioned border flowers," and as we are always desirous to meet the requirements of our readers on every subject, I purpose to write a few papers on the management of this interesting and useful class of flowering plants. There seems to be a reaction in their favour. Though the bedding-out system is certainly exceedingly beautiful when properly carried out, yet its warmest advocates must confess that the season, when the plants arranged in this modern mode are in perfection, is but a short one, certainly not more than three months—that is, from August to October; whereas, the season for herbaceous plants, judiciously planted, will extend from April to the end of October.

I propose to confine my remarks to such of them as are really worth growing and of easy culture, including any new kinds that have the same character. Hardy herbaceous bulbs and alpine plants, such as are suitable to plant on rockwork, I shall refer to hereafter.

Borders may be so planted with herbaceous plants that there will be flowers blooming throughout spring, summer, and autumn. After the list I am about to compile is complete, I will endeavour to demonstrate how such a show of bloom may be accomplished. Whoever possesses a border well filled with good herbaceous plants will always be pleased therewith; and such a collection of plants is kept in order with much less care and trouble than the plants used in the modern mode of furnishing a flower garden in the (as it is called) bedding-out system. The labour necessary to keep up a stock of plants to fill the beds is immense. It is only in large places—such as the Crystal Palace, Worsley Hall, Putteridgebury, Trentham, Shrubland, Enville Hall, and such like, where means are provided liberally—that the bedding-out mode can be carried out to perfection. Smaller places—the amateur's garden and the cottager's border—may well be content with cultivating the herbaceous plants I am about to describe. I shall adopt the alphabetical arrangement in my list as being the most easily referred to, and filled up as new plants or varieties of plants are introduced or raised.

ACHILLEA—MILFOIL.

ACHILLEA AUREA (golden Milfoil). 6 in. Yellow. June. Levant.
A. PTARMICA FLORE-PLENO (double-white Milfoil). 1 ft. August.
A. TOMENTOSA (woolly). 2 ft. Yellow. July. Great Britain.

The Milfoils are a numerous tribe. Excepting the above-named the rest are little better than weeds.

Propagated by dividing the plants in April. They will grow in any soil not too wet.

ACONITUM—ACONITE.

TUBEROUS-ROOTED SPECIES.

ACONITUM AMGENUM (pleasing). 4 ft. Blue. June. South of Europe.
A. BIFLORUM (two-flowered). 6 in. Pale blue. June. Siberia.
A. FORMOSUM (handsome). 4 ft. Blue. June. S. of Europe.
A. GRACILE (slender). 2 ft. Blue. July. Switzerland.
A. JAPONICUM CÆRULEUM (blue, Japan). 4 ft. Blue. July. Japan.
A. NAPELLUS (Monkshood). 4 ft. Blue. June. S. of Europe.
A. OTTONIANUM (Otto's). 4 ft. Blue. June. S. of Europe.
A. RIGIDUM GRANDIFLORUM (large-flowered, rigid). 3 ft. Blue. June. Gardens.
A. VENUSTUM (beautiful). 3 ft. Blue. June. Switzerland.

FIBROUS-ROOTED SPECIES.

ACONITUM ANTHORA. 1½ ft. Yellow. July. Pyrenees.
A. AUTUMNALE (autumn). 1½ ft. Blush white. September. N. China.
A. BARBATUM (bearded). 2 ft. Yellow. June. Siberia.
A. CHINENSE (Chinese). 4 ft. Blue. September. China.
A. JAQUINII (Jaquin's). 1½ ft. Yellow. June. Austria.
A. LYCOCTONUM (Wolf's-bane). 3 ft. Purple. July. Alps of Europe.
A. PYRENAICUM (Pyrenean). 4 ft. Yellow. June. Pyrenees.
A. VERSICOLOR (various-coloured). Blue and white. Aug. Siberia.

A free-flowering, showy tribe. There are more than a hundred species registered; but, probably, not half that number in actual

cultivation. *A. napellus* is rather dangerous if the leaves or flowers are eaten. The young leaves have been mistaken for Parsley; but very common prudence will prevent any such unhappy mistakes.

Propagated by taking up the plants as soon as they have done flowering, and dividing them in two or more divisions—taking care that each division has plenty of roots. Plant them immediately in a moderately dry and well-manured loamy soil in an open situation.

ADENOPHORA.

ADENOPHORA SUAVEOLENS (sweet-scented Adenophora). 2 ft. Blue. June. Siberia.
A. DENTICULATA (toothed). 1 ft. Blue. July. Siberia.
A. LAMARKIANA (Lamarck's). 2 ft. Blue. July. Siberia.
A. MARSUPIFLORA (purse-flowered). 2 ft. Blue. July. Russia.
A. RETICULATA (netted). 2 ft. Blue. July. Siberia.
A. VERTICILLATA (whorled-leaved). 2 ft. Blue. June. Siberia.

A neat-habited tribe, of easy culture, and very hardy. Propagated by dividing the plant in April; replanting immediately in a rich, dry, light, sandy soil, fully exposed.

AGATHYRSUS.

AGATHYRSUS CYANEUS (deep-blue Agathyrus). 2 ft. June Nepal.

A. LAPPONICUS (Lapland). 6 ft. Blue. July. N. America.
A. SIBERICUS (Siberian). 2 ft. Blue. August. Pyrenees.
A. TATARICUS (Tartarian). 4 ft. Blue. August. Siberia.

A genus of Aster-like plants, with dense spikes of handsome flowers. Propagated by taking up the plants in April, cutting them into divisions with roots to each division, planting them immediately in rich loamy soil in the open border where they are to bloom. Some produce seeds plentifully. These should be gathered when ripe, and sown in May in light soil; and, when large enough, the seedlings transplanted in patches of threes into the herbaceous borders.

AGROSTEMMA—ROSE CAMPION.

AGROSTEMMA BUNGEANA (Dr. Bunge's Rose Champion). 1 ft. Scarlet. July. Russia.
A. DECUMBENS (bended). 1 ft. Crimson. July. S. of Europe.
A. PYRENAICA (Pyrenean). 1 ft. Pale rose. June. Pyrenees.
A. SUECICA (Swedish). 1½ ft. Pink. August. Sweden.

These pretty dwarf plants require frequent division to keep them from damping off. Propagated by seeds and division of the roots. Sow the seeds in light sandy soil, thinly covered, in June; and transplant the seedlings when very young in patches of three or five, in peat and loam mixed. If seeds cannot be procured, propagate by side-shoots in May, planted on a shady border in sand, transplanting them as soon as rooted into dry sandy loam on an open border. The leaves are very woolly: hence they hold moisture, and are apt to perish in long-continued damp autumn weather: hence it is advisable to keep a few in pots, and place them under the shelter of a cold pit or frame in wet weather.

AJUGA—BUGLE.

AJUGA AUSTRALIS (southern). 1 ft. Blue. July. New Holland.
A. GENEVENSIS (Genevan). 1 ft. Flesh-coloured. July. Switzerland.
A. INTEGRIFOLIA (entire-leaved). 1 ft. Blue. June. Nepal.
A. PYRAMIDALIS (pyramidal). 6 in. Blue. May. Britain.
A. RUBRA (red-flowered). 1 ft. May. Britain.
A. „ VARIEGATA (striped-leaved). 1 ft. Blue. April. Gardens.

Propagated by cutting each plant in two or more divisions as soon as they have done flowering. Renew the soil with a compost of loam, sandy peat, and leaf mould previous to replanting. If the peat is scarce it may be dispensed with, adding plenty of sand in its place. As they are mostly mountain plants, they should be grown fully exposed on a dry subsoil. Very pretty, low-growing, hardy plants.

ALSTROMERIA.

ALSTROMERIA AUREA (golden Alströmeria). 2 ft. Orange. June Chili.
A. HEMANTHA (blood-coloured). 2 ft. Crimson. July. Chili.
A. HOOKERIANA (Dr. Hooker's). 3 ft. Pink. June. Chili.
A. PELEGRINA (spotted-flowered). 1 ft. Striped. July. Chili.
A. PSITTACINA (parrot-like). 2 ft. Crimson. September. Brazil.
A. PULCHRA (fair). 1½ ft. Various coloured. June. Chili.
A. SIMSII (Sims's). 3 ft. Scarlet. June. Chili.

Though the Alströmerias are from warm climates, yet they are

perfectly hardy in this country. They are easily cultivated; all requiring a deep dry soil excepting *A. aurea*, which thrives best in rather moist strong loam. They should all be planted deep—that is, the crown of the roots ought to be covered from six to ten inches, which protects them from frost and drought. Increased readily by seeds. Sow in spring; and in the autumn transplant them to where they are to bloom, allowing plenty of room for the roots to spread. Cover the roots with sand or ashes to protect them from wet and frost in winter.

ALYSSUM—MADWORT.

- ALYSSUM ALPESTRE (alpine Alyssum). 1 ft. Yellow. June. S. of Europe.
 A. MARSHALLIANUM (Marshall's). 1 ft. Yellow. April. Caucasus.
 A. MONTANUM (mountain). 1 ft. Yellow. June. Germany.
 A. SAXATILE (rock). 1 ft. Yellow. May. Candia.
 A. " VARIEGATA (striped-leaved rock). 1 ft. Yellow. May. Gardens.
 A. WARSCHALLDII (Warschall's). 1 ft. Yellow. June. S. of Europe.

The Alyssums are favourite border flowers. I noticed this spring a long border of perennials at Slade House, the seat of W. Bradshaw, Esq., near Manchester; on which border at intervals there were large patches of the *A. saxatile* densely covered with its golden blossoms, making quite a gorgeous display.

Propagated by short cuttings in May, in sandy soil, on a shady border. Propagated also by seeds, which should be saved when ripe and sown immediately. As soon as the seedlings can be handled, prick them out in a nursery border, and finally, in the spring following, into their blooming quarters; removing them with balls, if possible, for they are rather shy in taking hold of the soil again. They thrive best in a dry, rather poor soil. The plants at Slade House shed their seeds naturally, and come up round each patch in great numbers.

AMASONIA.

- AMASONIA ANGUSTIFOLIA (narrow-leaved Amasonia). 2 ft. Blue. N. America.
 A. LATIFOLIA (broad-leaved). 2 ft. Blue. N. America.
 A. SALICIFOLIA (Willow-leaved). 2 ft. Blue. N. America.

Very handsome hardy plants; little known, but worthy of general cultivation. Propagated by cuttings and division.

Cuttings.—Take the short side-shoots any time from June to August. Plant them in sand in a shady place. When rooted, transplant them into the herbaceous border, giving them a rich, strong, sandy loam to bloom in.

Division.—In the autumn take up the plants, and make two or more divisions of each, taking care that each has a portion of roots to it. Then either plant them in a fresh place, or renew the soil previously to planting them in the same place again.

ANCHUSA—BUGLOSS.

- ANCHUSA AGARDHII (Agardh's Bugloss). 1 ft. Blue. August. Siberia.
 A. BARRELIERI (Barrelier's). 2 ft. Blue. July. S. of Europe.
 A. CÆSPITOSA (tufted). 6 in. Blue. June. Levant.
 A. LONGIFOLIA (long-leaved). 3 ft. Blue. July. Italy.
 A. RUPESTRIS (rock). 1 ft. Blue. July. Galicia.
 A. SERICEA (silky). 1 ft. Purple-yellow. July. Siberia.
 A. UNDULATA (waved). 2 ft. Purple. July. Spain.

The Anchusas are fine showy plants, mostly with large blue flowers. Propagated by seeds chiefly, and also by cuttings and division.

Seeds.—Save the seed as soon as it is ripe, and sow it in spring on a warm border of light, rich earth. Transplant the seedlings as soon as they are fit into a light, sandy, dry soil. Plant them in patches of three or five plants in each. They will make a better and finer show than single plants.

Cuttings.—Where plants are scarce, and seed cannot be procured, then take off slips or cuttings in May, and plant them in sand under a hand-light. They easily and quickly strike, and may be planted out finally in the autumn.

Division.—Any of the species that have several heads may be divided into as many plants as soon as they have done flowering, and replanted in fresh soil. They will flower well the second year.

ANEMONE.

TUBEROUS-ROOTED SPECIES.

- ANEMONE APENNINA (Alps of Europe Anemone). 6 in. Blue. April. England.
 A. BALDENSI (Mount Baldo). 6 in. White. May. Switzerland.

- ANEMONE CORONARIA (garland). 6 in. Various. June. Levant.
 A. CÆRULEA (blue). 1½ ft. May. Siberia.
 A. FISCHERIANA (Fischer's). 4 in. White. April. Siberia.
 A. HORTENSIS (garden). 9 in. Striped. April. Italy.
 A. NEMOROSA (wood). 3 in. White and red. April. Britain.
 A. " FLORE-PLENO (double-flowered). 6 in. White and red. April. British gardens.
 A. PALMATA (palmated). 6 in. Yellow. May. Portugal.
 A. " FLORE-PLENO (double-flowered). 9 in. Yellow. May. Gardens.
 A. PAVONINA (peacock-eye). 1 ft. Red. May. France.
 A. " FLORE-PLENO (double-flowered). 1 ft. Red. May. Gardens.
 A. REFLEXA (reflexed). 6 in. Yellow. April. Siberia.
 A. STELLATA PURPUREA (purple-star-leaved). 6 in. April. Italy.
 A. UMBELLATA (umbelled). 1 ft. Blue. April. Levant.

FIBROUS-ROOTED.

- A. ALBA (white). 6 in. June. Siberia.
 A. ALPINA (alpine). 6 in. White. May. Austria.
 A. ACUTIPETALA (acute petaled). 6 in. Blue. May. Switzerland.
 A. CERNUA (drooping). 6 in. Red and white. May. Japan.
 A. HUDSONIANA (Hudson's). 6 in. White. April. North America.
 A. JAPONICA (Japan). 2 ft. Rose. September. Japan.
 A. " HYBRIDA. 2 ft. White. Gardens at Chiswick.
 A. MONTANA (mountain). 1 ft. Purple. June. Switzerland.
 A. NARCISSIFLORA (Narcissus-flowered). 1 ft. White. May. Siberia.
 A. NUTTALLIANA (Nuttall's). 6 in. White. July. N. America.
 A. PATENS (spreading). 1 ft. Light yellow. June. Siberia.
 A. PRATENSIS (meadow). 6 in. Dark purple. May. Germany.
 A. PULSATILLA (common). 6 in. Violet. May. England.
 A. " RUBRA (red-flowered). 6 in. Reddish purple. May. Germany.
 A. SIBERICA (Siberian). 4 in. White. June. Siberia.
 A. TRIFOLIA (three-leaved). 6 in. White. April. France.
 A. URALENSIS (Ural). 6 in. Blue. May. Siberia.
 A. VERNALIS (spring). 6 in. White. April. Switzerland.
 A. " FLORE-LUTEA (yellow variety). 6 in. April. S. of Europe.

There are few tribes of hardy plants that contain so many beautiful and interesting species as the Anemone.

The florist's flower is the *A. coronaria*. All may be treated as border flowers, for which their early flowering renders them doubly welcome and valuable. They should have a light, rich, well-drained soil, and are readily increased by division of the fibrous-rooted kinds, and offsets of those with tuberous roots. Propagate when the leaves decay. Many kinds also increase by seed, which sow as soon as it is ripe on a warm border well drained, and enriched with a layer of dung under the soil six inches deep. The seeds will soon come up, and should be well watered in dry weather, and carefully weeded. They bloom best where they are sown, but they may be transplanted, if done whilst young. In order not to lose the roots whilst at rest, mark the place where each grew, with good, permanent, well-fastened-in labels. The choice double *A. coronaria* roots should be taken up, dried, and kept in a dry, cool room till spring, and then replanted.

ANTENNARIA.

- ANTENNARIA ALPINA (alpine). 1 ft. Pink. June. Alps of Europe.
 A. CARPATICA (Carpathian). 1 ft. Pink. June. Carpathian Mountains.
 A. DIOICA (dioecious). 6 in. Pink. June. Britain.
 A. PLANTAGINEA (plantain-leaved). 1 ft. White. July. Virginia.
 Everlastings of considerable beauty. Propagated by taking up the roots as soon as they have done flowering, and dividing them into moderate-sized patches, replanting them in fresh light soil immediately, watering them freely if the weather is dry. A little sandy peat added to the soil will be advantageous.

ANTHERICUM.

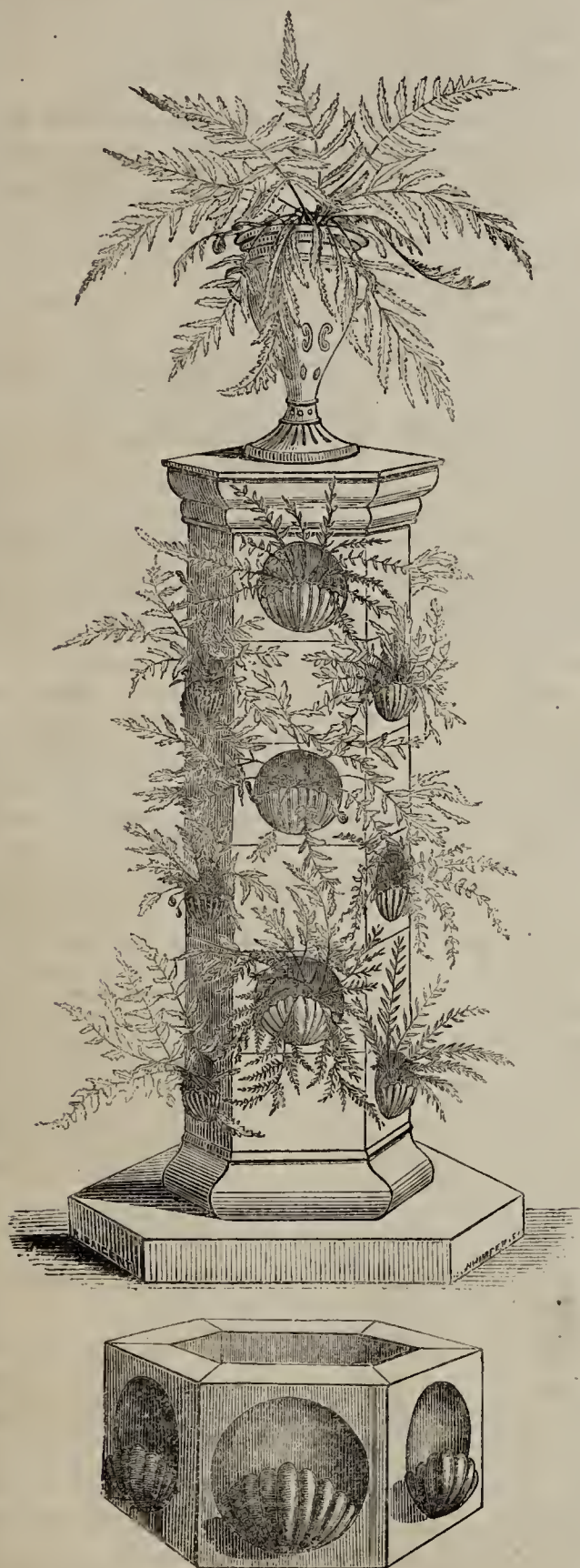
- ANTHERICUM SEROTINUM (late-flowering Anthericum). 1 ft. White. July. Britain.
 A. SULPHUREUM (sulphur). 1 ft. Purple and yellow. July. Hungary.

Two pretty plants, propagated by division, and cultivated in sandy loam.—T. APPLEBY.

(To be continued.)

FERN PILLARS.

I AM very desirous of calling your attention to a Fern-brick, the invention of Dr. Watson, a medical gentleman of this city. I have enclosed a few pencil sketches, showing the adaptability of them to various purposes of ornamental Fern growing. The



adapt them for ornamental conservatory or greenhouse decoration. A few explanations will give you my meaning.

A square brick, nine inches by four inches and a half, having its centre scooped out, a scollop-shell pattern is modded to fit the lower part of the hollow. This forms the front, and has a very ornamental appearance. They can be built one over the other for a pier or a wall at pleasure. A hole in the bottom of the hollow cavity is made, sloping to the back of the brick, for drainage.

The invention appears to me to possess the most merit when constructed into pillars of any convenient height, and cemented together or not at pleasure. The hollow space in the centre (as shown in the accompanying sketch), could be filled with damp moss, hay, &c; the vase on the top containing water, which could be contrived so as to slowly percolate by adjusting a cork to the hole in the bottom; and the water, supplying the roots of the Ferns by passing into the centre of the pillar, would always maintain a regular and an abundant moisture, so as to ensure a healthy growth in the driest atmosphere.

I consider it a matter of small importance which of the Ferns are planted north or south in the sides of the pillar; certainly the most fragile fronds would be benefited with all possible shade. The chief point I consider is to arrange them so that the erect-growing ones occupy the part of the pillar beneath the level of the eye; and the drooping ones on a level, or above the level of the eye.

In the subjoined list I have marked those for the lower half with E, the upper half with D, and named only those that are cheap, readily obtained, and easy of cultivation. Those marked F are fragile in texture, and would be benefited by a little shade.

- E. *Polypodium pectinatum*.
- D. „ „ *vulgare*, var. *Cambricum*.
- E. *Goniophlebium loriceum*.
- E. *Phlebodium aureum*.
- E. *Phymatodes longipes*.
- D. *Niphobolus lingua*.
- E. *Campyloneurum ensifolium*.
- E. *Drynaria diversifolia*.
- E. *Struthiopteris Germanica*.
- D. *Phlegopteris calcarea* and *vulgaris*.
- D. „ „ *dryopteris*.
- F. D. *Mynopteris lanagena* and *myriophylla*.
- D. *Cryptogramma crispa*.
- D. *Platyloina Brownii*, *falcata*, and *rotundifolia*.
- D. *Adiantum pedatum*, *affine*, and *formosum*.
- F. D. „ „ *hispidulum* and *Ethiopicum*.
- F. D. „ „ *cuneatum*, *assimile*, and *Capillus Veneris*.
- E. *Pteris longifolia*, *umbrosa*, and *semipinnata*.
- D. E. „ „ *tremula*.
- E. *Litobrochia vespertilionis*.
- E. D. *Blechnum occidentale* and *gracile*.
- D. *Doodia aspera* and *caudata*.
- D. *Woodwardia radicans*.
- D. *Asplenium lucidum* and *marinum*.
- F. D. „ „ *trichomanes*, *fountainum*, and *flaccidum*.
- E. D. „ „ *bulbiferum*, *polyodon*, and *adiantum nigrum*.
- F. D. „ „ *filix-femina*, vars. *crispum* and *multifidum*.
- F. D. E. *Ceterach officinarum*.
- E. *Onoclea sensibilis*.
- E. D. *Cyrtomium falcatum*.
- E. *Nephrodium Hookerii* and *molle*.
- F. D. *Cystopteris bulbifera* and *fragilis*.
- E. *Lastrea podophylla montana*.
- E. „ „ *filix-mas*, vars. *cristata* and *pumila*.
- E. „ „ *marginalis* and *Goldiana*.
- E. *Polystichum pungens* and *Capense*.
- D. *Davallia bullata* and *Canariensis*.
- E. *Cyathea dealbata*.

The above are all adapted to greenhouse culture.—J. TYERMAN, Upton Nurseries, Chester.

RETAINING MOISTURE TO PLANTS IN POTS.

YOUR correspondent Mr. S. Tattersall, page 210, recommends the shelves of small greenhouses to be made with a rim round them, to contain a layer of sand, on which the pots are placed, thus retaining a beneficial degree of cooling moisture. From my own experience, in a small way, I have, I think, derived the same benefit without interfering with the shelves. My plan is to fill, or nearly fill, each pan or saucer with sand (I use silver). The sand, of course, is kept damp by the drainage from

original intention of the inventor was to form a temporary wall or pier with square bricks, so that they might be taken out and replaced at pleasure; but I consider their greatest merit is to

the pots; and whilst a cooling evaporation is maintained, the evil effects of stagnant water in the pans are avoided. For Ferns, especially, I am much pleased with the good results.

I may be pardoned if I recur to a method adopted by me many years ago for moistening Dahlias, and the like, recently transplanted. I employed a potter to make a number of water-bottles of the common material of garden-pots, six or seven inches high, three or four inches broad at the bottom end, which is flat, and tapering upwards to a neck of an inch in diameter—I think holding about half a pint of water, or rather more, perhaps. A very small hole was made in the bottom. One of these pots was sunk into the earth a few inches from each Dahlia, its neck level with the ground, so that it was scarcely perceptible. Being filled with water, the latter made its way slowly through the hole at the bottom, drawing the roots of the plants downwards, instead of upwards, as is the case with surface watering. A cork inserted into the neck of the pot will, if needed, prevent a too-rapid expenditure of water. Where economy of water is an object, it is surprising how small a supply is sufficient thus administered, as not a drop is wasted or lost by evaporation; whilst the plant, always moist at the bottom, establishes itself rapidly. I gave one of these bottles to the late Mr. Loudon, who made a drawing of it for one of his publications. A simple substitute for it will be found in a common ginger-beer bottle, a small hole being drilled through the bottom.—H. T.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 244.)

PEARS.

AUTUMN BERGAMOT (*Bergamot*; *English Bergamot*; *York Bergamot*).—Below medium size, roundish, and flattened. Skin yellowish-green, brownish-red next the sun, dotted with grey-russet. Stalk short and thick, set in a wide, round, hollow. Eye small, placed in a shallow basin. Flesh greenish-white, juicy, melting, exceedingly sugary, and richly flavoured.

A fine old dessert pear, ripe in October. The tree is a vigorous grower, hardy, forms a handsome standard, and is a most abundant bearer.

AUTUMN COLMAR (*De Bavay*).—Medium sized, oblong pyriform, irregular, and uneven. Skin pale yellow, spotted with russet. Stalk an inch long, straight, and placed in a small, uneven cavity. Eye small, set in a very shallow basin. Flesh buttery, gritty at the core, rich, sugary, and perfumed. October to November.

The tree is a good bearer, and succeeds well as a standard.

D'AVRIL.—Fruit large, pyramidal, uneven in its outline, and considerably bossed round the eye. Skin smooth and shining, of a lively dark green colour, with a dark brown tinge next the sun, and patches of ashy-grey russet on the shaded side; the whole surface covered with very large pale-coloured specks. Flesh crisp, juicy, and sweet. March and April.

Badham's. See *Brown Beurré*.

Banereif. See *Crawford*.

Banneux. See *Jamiette*.

BARONNE DE MELLO (*Adèle de St. Denis*; *Beurré Van Mons*; *His*).—Fruit large, of a curved pyramidal shape. Skin almost entirely covered with dark brown russet, which is thin and smooth. Eye small and open, placed in a very slight depression. Stalk half an inch long, slender, and inserted on the surface of the fruit. Flesh greenish-yellow, fine-grained, melting, and buttery; very juicy, rich, sugary, and with a fine aroma.

An autumn dessert pear of first-rate excellence. Ripe in the end of October, and continues three weeks. The tree is very hardy, an excellent bearer, and succeeds well as a standard or pyramid.

Bartlett. See *Williams' Bon Chrétien*.

De Bavay. See *Autumn Colmar*.

BEADNELL'S SEEDLING.—Fruit medium sized, turbinate. Skin pale yellowish-green, with a blush of red on the side next the sun, and strewed with grey dots. Eye rather open, set in a shallow depression. Stalk about an inch long. Flesh tender and melting, very juicy and sweet. Ripe in October. Tree hardy, and an excellent bearer.

Beauchamps. See *Bergamotte Cadet*.

Beau de la Cour. See *Conseiller de la Cour*.

Beau Present. See *Jargonelle*.

BEAU PRESENT D'ARTOIS (*Present Royal de Naples*).—Fruit large and pyriform. Skin greenish-yellow, covered with patches and dots of brown russet. Eye small and closed, set in a shallow basin. Stalk about an inch long, slightly depressed. Flesh melting, juicy, sweet, and pretty good flavoured. Ripe in September.

Bedminster Gratioli. See *Jersey Gratioli*.

Bein Armudi. See *Bezi de la Motte*.

Bell Pear. See *Catillac*.

Bell Tongue. See *Windsor*.

Belle Alliance. See *Beurré Sterckmans*.

Belle Andrenne. See *Vicar of Winkfield*.

Belle d'Août. See *Belle de Bruxelles*.

Belle Après Noël. See *Fondante de Noël*.

Belle d'Austrasie. See *Jamiette*.

Belle de Berri. See *Vicar of Winkfield*.

BELLE ET BONNE (*Gracieuse*).—Fruit large, roundish. Skin pale yellowish-green, covered with numerous russety and green spots. Eye open, set in a wide shallow basin. Stalk long and slender, fleshy at the base, and inserted in a narrow cavity. Flesh white, rather coarse, tender, buttery, sweet, and pleasantly flavoured. Ripe in September, but not at all a desirable variety to grow.

BELLE DE BRUXELLES (*Belle d'Août*; *Belle sans Epines*; *Bergamotte d'Été Grosse*; *Bergamotte des Paysans*; *Fanfarean*).—Fruit large, abrupt pear-shaped. Skin smooth, of a fine clear lemon-yellow colour, with a tinge of red next the sun, and strewed with freckles of russet. Eye small and half open, set in a shallow basin. Stalk an inch long, without a cavity. Flesh white, tender, juicy, sweet, and perfumed.

A good and handsome summer pear, ripe in the end of August. The tree is very hardy, and a great bearer.

BELLE EPINE DU MAS (*Colmar du Lot*; *Comte de Limoges*; *Duc de Bordeaux*; *Epine Dumas*; *Epine de Rochechouart*).—Fruit medium sized, pyriform. Skin pale lively green, thickly covered with large dots and patches of brown russet on the shaded side; but next the sun marked with reddish-brown and orange. Eye small and open, set in a deep and furrowed basin. Stalk an inch long, stout, and inserted in a deep cavity prominently knobbed round the margin. Flesh tender, half melting, juicy, and sweet, but with little flavour. In use during November and December.

Belle d'Esquerme. See *Jalousie de Fontenay*.

Belle Excellente. See *Duc de Brabant*.

Belle Fertile. See *Amour*.

Belle de Flandres. See *Flemish Beauty*.

Belle Gabrielle. See *Ambrette d'Hiver*.

Belle Heloise. See *Vicar of Winkfield*.

Belle de Jersey. See *Uredale's St. Germain*.

BELLE JULIE.—Fruit rather below medium size, oval. Skin clear olive-green, with a faint tinge of dull red on the side next the sun, and considerably marked with russet, particularly round the eye. Eye open, with spreading segments slightly depressed. Stalk an inch long, inserted in a small cavity. Flesh white, buttery, and melting, juicy, sugary, and with a fine aroma.

An excellent pear, ripe during November. The tree forms a beautiful pyramid, and is a good bearer.

Belle Luerative. See *Fondante d'Automne*.

Belle de Noël. See *Fondante de Noël*.

(To be continued.)

THE SCIENCE OF GARDENING.

(Continued from page 241.)

SALTS OF AMMONIA.—These, without any exception, are powerful manures, though varying in their amounts of benefit to the crops for the increase of which they are applied. More than thirty years since we pointed out that dung-manures are good fertilisers in proportion to the amount of ammonia they contain, and we endeavoured to account for it upon the known stimulating properties of ammonia. There was, also, the known fact, that such highly ammoniated dung-manures decompose and become soluble more rapidly than other organic manures containing less ammonia. Since then, chemical analysis has shown that azote, or nitrogen, a chief constituent of ammonia, is also a constituent of vegetables more prevalent than had been ascertained at the time we wrote.

The pungent smell in stables, and which arises from the fermenting dung of hotbeds, is caused by the ammonia which is escaping. To prevent this escape, it is not unusual to sprinkle powdered gypsum (sulphate of lime), among the dung and over the pavement of stables. Gypsum spread over a soil at the time dung is dug in also prevents the escape from it of the ammonia. It is then spoken of as *fixing* the ammonia.

This process consists in the combination of the sulphuric acid of the sulphate of lime with the ammonia, and the consequent formation of sulphate of ammonia, a salt which is said to be thus *fixed* in the soil, because it is not volatile, or vaporised in a temperature in which several other of the salts of ammonia are completely removed from the soil. This salt, in common with other salts of ammonia, is a powerful fertiliser, and is one of those valuable additions to the list of the cultivator's agents for which he is indebted to modern chemistry. Ammonia consists of hydrogen seventy-four per cent., nitrogen or azote twenty-six per cent. The following is the composition of its three chief salts, which are easily purchasable:—

	Acid.	Ammonia.	Water.
Sulphate . . .	54.66	14.24	31.10
Carbonate . . .	45.00	43.00	12.00
Muriate . . .	49.55	31.95	18.50

In 1840, Liebig, when speaking of the source from whence plants obtain the greatest portion of nitrogen, combated pretty successfully the old opinion that they derived it chiefly from the atmosphere. He remarked (*Organic Chemistry*, p. 69), "We cannot suppose that a plant would attain maturity, even in the richest mould, without the presence of matter containing nitrogen, since we know that nitrogen exists in every part of the vegetable structure. The first and most important question to be solved therefore is, How, and in what form, does Nature furnish nitrogen to vegetable albumen, and gluten to fruits and seeds?" After giving a variety of facts in support of the opinion that it is ammonia which affords all vegetables, without exception, the nitrogen which enters into the composition of their constituent substances, he adds the way in which plants supply themselves with ammonia:—"The nitrogen of putrefied animals is contained in the atmosphere, as ammonia, in the form of a gas which is capable of entering into combination with carbonic acid gas, and forming a volatile salt. Ammonia in its gaseous form, as well as all its volatile compounds, is of extreme solubility in water; ammonia, therefore, cannot remain long in the atmosphere, as every shower of rain must condense it and convey it to the surface of the earth. Hence, also, rain water must at all times contain ammonia, though not always in equal quantity. It must be greater in summer than in spring or in winter, because the intervals of time between the showers are greater; and when several wet days occur the rain of the first must contain more of it than of the second. The rain of a thunder-storm, therefore, after a long protracted drought, ought, for this reason, to contain the greatest quantity which is conveyed to the earth at one time. But all the analyses of atmospheric air *hitherto made have failed to demonstrate the presence of ammonia*; although, according to our view," says M. Liebig, "it can never be absent. Experiments made in the laboratory of Giessen, with the greatest care and exactness, have placed," continues Liebig, "the presence of ammonia in rain water beyond all doubt. It had hitherto escaped observation, because no one thought of searching for it. All the rain water employed in this inquiry was collected 600 paces south-west of Giessen, whilst the wind was blowing in the direction of the town. When several hundred pounds of it were distilled in a copper still, and the first two or three pounds evaporated, with the addition of a little muriatic acid, a very distinct crystalli-

sation of sal ammoniac was obtained. The crystals had always a brown or a yellow colour. Ammonia may also always be detected in snow water. Crystals of sal ammoniac were obtained by evaporating in a vessel with muriatic acid several pounds of snow, which were gathered from the surface of the ground in March, when the snow had a depth of ten inches. The inferior layers of snow which rested upon the ground contained a quantity decidedly greater than those which formed the surface. It is worthy of observation, that the ammonia contained in rain and snow water possessed an offensive smell of perspiration and animal excrements, a fact which leaves no doubt respecting its origin. The products of the distillation of flowers, herbs, and roots, with water, and all extracts of plants made for medicinal purposes, contain ammonia. The unripe transparent and gelatinous pulp of the Almond and Peach emit much ammonia when treated with alkalis. The water which exudes from a cut Vine, when evaporated with a few drops of muriatic acid, also yields a gummy deliquescent mass, which evolves much ammonia on the addition of lime. Ammonia exists in every part of plants, in the roots (as in Beet-root), in the stem (of the Maple tree), and in all blossoms, and fruit in an unripe condition. Putrid urine is employed in Flanders as a manure with the best results. During the putrefaction of urine, ammoniacal salts are formed in large quantity, it may be said exclusively; for, under the influence of heat and moisture, urea, the most prominent ingredient of the urine, is converted into carbonate of ammonia."

"Ammonia," says Professor Johnston (*Elem. of Chemistry*, p. 22), "is naturally formed during the decay of vegetable substances in the soil. This happens either, as in animal bodies, by the direct union of nitrogen with a portion of the hydrogen of which they consist, or by a combination of a portion of their hydrogen with the nitrogen of the air; or, when they decompose, in contact with air and water; at the same time, by their taking the oxygen of a quantity of the water, and disposing its hydrogen at the moment of liberation to combine with the nitrogen of the air, and form ammonia. In the two latter modes, ammonia is formed most abundantly when the oxygen of the air does not gain the readiest access. Hence, in open subsoils in which vegetable matter abounds, it is most likely to be produced; and thus one of the benefits which follow from thorough draining and subsoil ploughing is, that the roots penetrate and fill the subsoil with vegetable matter, which, by its decay in the confined atmosphere of the subsoil, gives rise to this production of ammonia."—(*C. Johnson's Modern Agricultural Improvements*.)

That the salts of ammonia are very powerful manures has been established by the experience of many practical men; and whether applied in the form either of gas ammoniacal liquor or sulphate of ammonia, they have been found to benefit very largely Potatoes, Asparagus, Peas, Turnips, Fuchsias, Pelargoniums, and Holy-hocks. We believe that there are few, if any, plants cultivated in our gardens that would not be benefited by these ammoniacal applications, care being taken not to apply them too liberally. Half an ounce of sulphate of ammonia to a gallon of water is quite enough.—J.

(To be continued.)

A NOTE-WORTHY APPLE TREE.

As I was taking a stroll on the 4th of April last among my neighbours' gardens, to my great surprise I saw fruit on an Apple tree, apparently. It is not less than thirty years old, and is one of the largest trained trees that I ever saw. It stands on a south-west aspect, planted against a farm-house, with its stem to the flue, where the fire is burning winter and summer. It is growing in rather a strong soil, with its roots feeding in a well-kept flower garden, which is not to be often met with at many farm-houses.

Now, this wonderful tree had not less than two dozen fine Keswick-Codlin-like Apples on, which had been left on the tree to stand the winter. They had over them a thin piece of calico to protect them from severe frosts, and the rest of the crop had been gathered off the tree last October and stored. My friend gave me four of them; and I asked him to allow me to see if those left on the tree were tied on, and, to my astonishment, I found that they required no tying, and found them as Nature had placed them. I took hold of one, and thought it would not require much pressure to get it off, but I was very much mistaken; it was so very firm that I was afraid that I should pluck off the spur if I had not taken hold with the other hand. I cut the Apple in two. It was as we see a Keswick Codlin when cut on the 1st day of November, and had a most excellent flavour.

It was, according to my judgment, so worthy of being planted in every garden, that I intend to graft two trees next season with this sort.

I saw this said tree on the 14th of this month (July), and it has a fine crop on this season. I have not seen any tree this year so well covered as it is; but I hope to be able to send the Editors of *THE COTTAGE GARDENER* a dish of them gathered from the tree next April after withstanding the winter storms which blow over the hills of Craven. I am very much surprised that this tree has not been written about many years since.—
RICH. EASTWOOD, *Gisburn Park, Yorkshire.*

NEW BOOKS.

FRUITS, FLOWERS, AND FARMING.*—There is a freshness about this work of an American clergyman rarely met with in books upon such subjects. It is one of the most pleasant and useful volumes we ever perused. Two extracts shall give evidence in support of our opinion:—

“O DEAR! SHALL WE EVER BE DONE LYING?”

“An honest old gentleman, in telling us his troubles, gave great prominence to the necessity he was frequently under of disappointing his customers, whose work could not be finished as soon as he had promised. After explaining the difficulty, he looked up with great earnestness and exclaimed, ‘O dear! shall we ever be done with this lying?’”

“We have often wondered ourselves whether such a consummation would ever take place. ‘Your boots shall be done on Saturday night without fail.’ Nevertheless, you have to go to church with gaping shoes for want of them. ‘Your coat shall be sent home by nine o’clock on Saturday night;’ and you get it, in fact, the Wednesday after. ‘Will you lend me your wheelbarrow? I will return it to night.’ You wait for it till next week, and then send for it. My carpenter solemnly agreed to finish my house by November; but it was July before I could get the key. My wood was to be split on Saturday afternoon—enough for the Sabbath; so it was—but I had to do it. My money was to be paid me the next week; and then, next week; and then, NEXT week—and then as soon as he could get it; he did get it—and spent it; and then it should be paid when he got it again—he got it again, and paid another debt because the man treated him more savagely than I would. The strength laid out in running for this money, if it had been economically applied to labour, would nearly have earned the whole debt. The fellow never paid me at last; but Death came along, and he paid him promptly. ‘O dear! shall we ever get done with this lying?’ It is one of the few domestic manufactures which need no protection, and flourishes without benefit either to the producer or consumer.”

“SUN-FLOWER SEED.

“To some extent this is likely to become a profitable crop. Medium lands will yield, on an average, fifty bushels; while first-rate lands will yield from seventy to a hundred bushels.

“MODE OF CULTIVATION.—The ground is prepared in all respects as for a corn crop, and the seed sown in drills four feet apart—one plant to every eighteen inches in the drill. It is to be ploughed and tended in all respects like a crop of corn.

“HARVESTING.—As the heads ripen, they are gathered, laid on a barn floor and threshed with a flail. The seed shells very easily.

“USE.—The seed may be employed in fattening hogs, feeding poultry, &c., and for this last purpose it is better than grain. But the seed is more valuable at the oil-mill than elsewhere. It will yield a gallon to the bushel without trouble; and by careful working, more than this. Hemp yields one gallon and a fourth to the bushel; and Flax-seed one and a half by ordinary pressure; but two gallons under the hydraulic press.

“The oil has, as yet, no established market price. It will range from seventy cents to a dollar, according as its value shall be established as an article for lamps and for painters’ use. But at seventy cents a gallon for oil the seed would command fifty-five cents a bushel, which is a much higher price than can be had for corn.

“It is stated, but upon how sufficient proof we know not, that Sun-flower oil is excellent for burning in lamps. It has also been tried by our painters to some extent; and for *inside* work, it is said to be as good as Linseed oil. Mr. Haunaman, who

has kindly put us in possession of these facts, says that the oil resembles an *animal*, rather than a vegetable oil; that it has not the *varnish* properties of the Linseed oil. We suppose by varnish are meant the albumen and mucilage which are found in vegetable oils. The following analysis of *Hemp-seed* and *Flax-seed*, or as it is called in England, *lin* or *linseed*, will show the proportions of various ingredients in one hundred parts.

	Hemp-seed. (Bucholz.)	Linseed. (Leo Meier.)
Oil	19.1	11.3
Husk, &c.	38.3	44.4
Woody fibre and starch	5.0	1.5
Sugar, &c.	1.6	10.8
Gum	9.0	7.1
Soluble albumen (Casein?)	24.7	15.1
Insoluble ditto	—	3.7
Wax and resin	1.6	3.1
Loss	0.7	3.0
	100	100

“The existence of impurities in oil, such as mucilage, albumen, gum, &c., which increase its value to the painter, diminish its value for the lamp, since these substances crust or clog the wick, and prevent a clear flame. All oils may, therefore, the less excellent they are for painting, be regarded as the more valuable for burning. *Rape-seed* is extensively raised in Europe, chiefly in Flanders, for its oil, and is much used for burning. Ten quarts may be extracted from a bushel of seed. We append a table representing the richness of various seeds, &c., in oil.

	Oil per cent.
Linseed (flax)	11 to 22
Hemp-seed	14 „ 25
Rape-seed	40 „ 70
Poppy-seed	36 „ 33
White Mustard-seed	36 „ 48
Black Mustard-seed	15
Swedish Turnip-seed	34
Sun-flower seed	15
Walnut kernels	40 „ 70
Hazel-nut kernels	60
Beech-nut kernels	15 „ 17
Plum-stone ditto	33
Sweet Almond kernels	40 „ 54
Bitter ditto ditto	28 „ 46

ALOEES versus APHIS.

SINCE I informed you of our village shoemaker’s mode of killing the green fly, &c., with bitter aloes (see page 50), I have had an opportunity of trying it myself, and the result of my experiments is only an echo of your own,—namely, the small aphides were killed, but those which had arrived at maturity remained uninjured. But, if you take half an ounce of bitter aloes, and two pounds of common washing soda, and mix them with two gallons of warm soft water, and apply it to the infested plants after it has become cold, the result will be very different; both small and great insects become its victims. As far as my little experience of it goes, it is necessary to syringe the plants with the solution in the evening, and again with pure water in the morning, which will effect a *twofold* purpose,—namely, washing off the dead insects, and removing the soda aloes, which, if allowed to remain, would, to a certain extent, injure the leaves, especially those of soft-wooded plants. Leaves that have a thick skin do not seem to suffer from it in the least.—
JAMES REID, *Sudbury Hall.*

FRUIT IN AMERICA.—*Batavia, Genesee Co., N.Y., June 6.*—On Saturday last, 4th inst., at 10 A.M., we were visited by a north-west storm of snow and sleet, giving to the air a November chill. It continued but a short time, but was succeeded by a cold wind and some rain, clearing off at night, and was followed by a very severe frost. As near as I can ascertain, it extended all through this vicinity, killing corn, Potato tops, Beans, Pumpkins, Squashes, Cucumbers, Melons, and Tomatoes, and injuring fruit very much in all exposed situations. More than one-half of all the Apples, Pears, Cherries, and Grapes are destroyed. I cannot discover as yet any damage done to Wheat, Barley, or Oats, and very little to Peas and Clover. It is too soon to fully ascertain all the damage done to growing crops; but to farmers

* *Plain and Pleasant Talk about Fruits, Flowers, and Farming.* By Henry Ward Beecher. Sampson, Low, and Co., London.

that have just turned their attention from midge-eaten Wheat to coarse grains and Potatoes, this is a severe blow. Corn planted after this date must have a very favourable season to mature before the autumnal frosts.

Westfield, Chautauque Co., N.Y., June 8. — We had a severe frost here the night of June 4th. Corn and Potatoes were frozen—also the present season's growth of the Grape Vines. On the ridge or hill back from Lake Erie, in all the south part of the county, Apples were frozen on the trees, and even Peas and Onions were cut off. Such a frost in June has never occurred here since the country was settled.—(*American Country Gentleman*.)

ENTOMOLOGICAL SOCIETY'S MEETING.

THE July meeting of the Entomological Society, held on the 4th instant, was presided over by Dr. J. E. Gray, F.R.S., President.

After the announcement of the donations of various works to the Society's library, Mr. Jeakes exhibited a North American species of Weevil, belonging to the genus *Brentlus*, which had lately been taken flying in a garden at Camden Town, near London. It is supposed to have been reared on the stems of shrubs from that country growing near at hand.

Mr. Frederick Bond exhibited some lepidopterous insects lately taken at Freshwater, in the Isle of Wight; amongst which were some fine varieties of *Setina irrorella*, an apparently new species of *Coleophora* (a genus of case-bearing Moths of small size), an example of *Cochylis flaviciliana*, and some fine *Gelechia*. He also exhibited a beautiful living specimen of the splendid beetle *Colosoma sycophanta*, taken on the coast at Freshwater a few days previous to the meeting.

Mr. Shepherd exhibited some specimens of *Deleaster dichroa*, a rare species of Rove beetle, lately taken near London: and Mr. A. F. Sheppard two specimens of *Erastria venustula* taken near Loughton, in Essex.

Mr. Ianson exhibited a specimen of *Stenus opticus*, a species of Rove beetle new to Britain, taken by Mr. Squire in Horning Fen; and Mr. Mitford a fine series of both sexes of the rare Moth *Psyche fusca*, which he had lately reared from the larvæ (which reside within moveable cases, covered with bits of twigs and leaves like the Caddice worms); also a specimen of *Carabus intricatus* taken near Bath.

Mr. Stevens exhibited some beautiful minute Moths collected at Moreton Bay, in Australia, by Mr. Diggles; also a most beautiful species of *Gastrophasia* (a genus of Moths), with a drawing of the larva from which it had been reared by the same gentleman.

Mr. Gorham exhibited a series of *Anchomenus livens* found near Eltham.

Mr. Stevens exhibited both sexes of the grand new species of *Ornithoptera*, respecting the capture of which he had read a letter from Mr. A. R. Wallace at the last meeting of the Society. It belongs to the same group as *Papilio Priamus*, but the male has the brilliant green of the wings of that species replaced by the most gorgeous golden scales; whence Mr. Wallace proposes the name of *O. Cræsus* for this, one of the finest additions to the many novelties lately sent to this country by this enterprising collector, who had also sent specimens of another apparently new *Papilio* allied to *P. Ulysses*, remarkable for the great brilliancy of the blue colour of the upper side of the wings. These butterflies had been taken in the island of Batchian, near New Guinea. The name of *P. Telemachus* was proposed for the latter species.

Mr. F. Smith read a paper on the economy of the *Ichneumonina*, constituting the genus *Pezomachus* of Gravenhoist, which he had observed to be parasitic in the egg-nests of some species of Spiders in this country.

Mr. Waterhouse exhibited specimens and drawings of the larva of *Hydrous picens*, the great Water beetle. He also read a series of notes on the British species of *Donacia*; as well as a revision of the British species of the family *Cisidæ*—minute beetles which reside in fungi.

Mr. Westwood exhibited a new kind of Butterfly recently received from New Caledonia, of which he read a description, under the name of *Papilio (Ulysses) Ulyssinus*. Considering it as a local, or geographical, sub-species of *Papilio Ulysses*, varying in its uniformly smaller size and other differences in its markings, he considered this as an example of the tendency of certain species to undergo a modification of form in different localities, whereas other species remained permanent in their

characters, under any change of circumstances, of climate, or locality. Such as was found to be the case with *Cynthia cardui*. He considered that this difference in the amount of modification, to which different species were thus shown to be subject, had not hitherto been sufficiently regarded with reference to the question of the permanence of species since the period of their creation.

Mr. Waterhouse agreed in the existence of distinct races, or fixed geographical varieties in certain species of Weevils which he had examined. He had not, however, considered it advisable or necessary, to distinguish them by a separate name, as Mr. Westwood was inclined to do. He also mentioned the circumstance, that whilst certain species of a genus (as, for instance, the common Lady Bird, *Coccinella 7-punctata*), never, or very rarely, indeed, exhibited any variation from its normal state, other species in the same genus were so liable to vary, that it was scarcely possible to find two individuals alike.

Mr. Westwood also exhibited and described a new and beautiful spectre insect, just received from the River Amazon, to which he gave the name of *Direlytron Batesianum*, in honour of Mr. Bates, by whom it had been collected.

GRAFTING EVERGREENS AND SHRUBS ON DECIDUOUS STOCKS.

AN old experienced gardener communicates the following interesting instances of grafting which have proved successful with him, and invites nurserymen to try the same experiments and relate their success.

Photina serrulata, or *glabra* (often called *Crataegus glabra*), and its variety *P. serrulata dentata*, grow well on the common Quince, *Cydonia vulgaris*. Inoculation is preferable to split-grafting. Do not choose your stocks too strong, or after the first year the graft may come off. I thus raised in my nursery specimens which in the second year had nice heads with shoots from two to two feet and a half long. I add that this kind does not graft on White Thorn as well as the other kinds of *Crataegus* do. *Eriobotrya Japonica* (*Mespilus Japonicus*), grafted by side or cleft-grafting, also grows better on Quince than on White Thorn. *Cotoneaster buxifolius* grafted on White Thorn makes a fine, spreading head. The branches somewhat pendulous and woolly, shining green leaves, and the fruit fine and of a coral red. *Cotoneaster microphylla*, however, has a pyramidal growth, and numerous fiery-coloured fruit, looking very well amidst the dark green foliage. Both species can be raised also on their own roots. *Ruscifolius* is finely adapted for hillsides in gardens and parks; *microphylla* for massing or in pots.

Prunus laurocerasus, or Cherry Laurel, I have propagated by layers for many years, and lately by grafts on *Cerasus avium* and *padus* (*Prunus padus*). When grafted, and when in average soil, it will stand the cold much better.

All Mahonias graft well on *Berberis vulgaris*, or on any strong *Berberis*, such as the *Nepalense*, *aristata*, &c. Different Mahonias can be grafted, also, at a certain height on the same plant. *Mespilus pyracantha*, both the red and the yellow-white-fruited graft equally well on Quince and White Thorn. *Cerasus Caroliniana* grafts well and lasts longer when grafted on *Prunus padus*. *Cerasus illicifolius* does the same on *Prunus Mahaleb*. Both Cherries can be grafted like Roses in the greenhouse, on account of their fine thin bark.

I never tried grafting *Euonymus Japonicus*, *Rhamnus alaternus*, *Viburnum sinensis*, *Ligustrum Japonicum* and *Nepalense*, because they propagate easily by layers, cuttings, and seed.

All the above-mentioned plants graft best and easiest by clefts into the bark in the same way as you go about grafting into the bark of old and badly-grown pyramidal fruit trees which you want to improve and are too old for inoculation.

Will anybody tell his experience in regard to grafting deciduous trees and shrubs on evergreen stocks?—(*American Gardener's Monthly*.)

VARIETIES.

"THE CATTLE ARE IN THE FIELD!"—Kate at the back door cries, "the cattle are in the field!" grabs the mop, and runs. Farmer Jones drops his knife and fork, and rushes out at one door, nearly choking himself trying to yell at "the pesky critters" before he has swallowed the last mouthful of dumpling he had deposited. John Jones, jun., tosses the book he is reading on the table, tipping over the lamp and his chair as he

springs through another door, and seizes a club. Madam Jones catches the broom and breaks the handle the first blow, as she shouts "shu!" and brings it down on the ground with a tremendous force. Dolly Jones throws her apron over her head, and, as she rushes round the corner of the house, tears a whole breadth out of her dress on a projecting nail, while "Bub" Jones, the four-year-old, tips over the teapot in trying to get at the sugar-bowl in the absence of the rest of the family. A fifteen minutes' chase drives the cattle over and through the fence, breaking it down in half a dozen places. Kate, surnamed "Stupid," having with her mop carefully guarded the "gap," "to keep the rest of 'em out," as she averred afterward, though John Jones, jun., was heard to mutter that "the stupid f—l didn't know what she was about." It cost a full half-day's labour to repair damages, little of which was done by the cattle, but all chargeable to the account of leaving the bars down.—(*Prairie Farmer*.)

THE SPIDER-CRAB.—I delight in watching the habits of fish, insects, &c., in a good aquarium. We are indebted to these inventions of more modern times for some curious discoveries in natural history, especially those which refer to the hitherto-unknown habits of marine animals. Let me here mention one instance of a peculiar instinct in a small crab, which may interest the reader, and which afforded me much pleasure, (especially as I believe the facts I am about to relate are not generally known; or, if known, only to a very few persons, and those few not of the scientific world. At the same time I am unwilling to claim any credit for the discovery. It was first communicated to me through an amiable clergyman and his wife residing in Scotland, who, having an aquarium, and living close to the sea, had frequent opportunities of ascertaining the facts I am about to relate, and which I was able myself to verify during a recent sojourn I made at Bognor, in Sussex. The facts are these. There is a very small species of crab, called by the fishermen at Bognor the spider-crab, and which has its body and claws covered with numerous very minute hooks, scarcely perceptible to the naked eye, but perfectly so with the help of a magnifying-glass. It may be asked, "What can be the use of these hooks?" You shall hear. This crab is a prodigious coxcomb, and very careful of its own precious person. Either, then, for the purpose of concealing itself from its enemies, or from an innate love of finery, it selects a quantity of seaweed, always preferring the most gaudy colours—those chiefly red. Having selected them, he cuts them into fine thread-like slips, and runs them through the hooks. When he has completed his toilette, he appears one mass of seaweed; thus not only disguising himself from those enemies which might otherwise make him their prey, but perhaps feeling himself the best-dressed crab in the neighbourhood. It is also remarkable that this labour for making his toilette is renewed every morning, so that the quantity of seaweed consumed is very great. This may be observed by any one who has the opportunity of keeping these comical little crabs in an aquarium, although, I regret to add, they do not live long in a state of confinement. They are caught in considerable numbers in the bloters and prawn baskets at Bognor, together with another crab, about the same size as the spider-crab, but which is not furnished with hooks. On speaking to the Bognor fishermen respecting the latter, I found they all entertained the idea that the seaweed grew on them. The thread-like weeds may, however, be drawn out one by one until the little dandy is left perfectly bare. I am not aware in what other localities this crab is to be found beyond those I have mentioned. I could not hear of it either at Brighton or Eastbourne; but I hope that this notice may induce others to prosecute some inquiry into the habits of this singular little animal.—EDWARD JESSE.—(*Once a Week*.)

PLANTS OF CEYLON.—The Guava and the Katumbillé are certainly very numerous throughout the Ourva district; the latter being a dark red, rough-skinned kind of Plum, the size of a Greengage, but free from stone. It grows upon a thorny bush about fifteen feet high; but the fruit is too acid to please most palates. The extreme thirst produced by a day's shooting in a burning sun makes it refreshing when plucked from the tree; but it does not aspire to the honour of a place at the table, where it can only appear in the form of a Red-Currant jelly, for which it is an undeniable substitute. Excellent Blackberries and a very large and full-flavoured black Raspberry grow at Newera Ellia; likewise the Cape Gooseberry (*Physalis edulis*), which is of the family *Solanaceæ*. The latter is a round yellow berry, the size of a Cherry; this is enclosed in a loose bladder, which forms an outer

covering. The flavour is highly aromatic; but, like most Ceylon wild fruits, it is too acid. The sweetest and best of the jungle productions is the "Morra" (*Litchée*, or *Nephelium Litchi*). This is a berry about the size of a small Nutmeg, which grows in clusters upon a large tree of rich dark foliage. The exterior of the berry is brown and slightly rough; the skin, or rather the case, is brittle, and of the consistence of an egg-shell; this, when broken and peeled off, exposes a semi-transparent pulp, like a skinned Grape in appearance and in flavour. It is extremely juicy; but, unfortunately, a large black stone occupies the centre and at least one-half of the bulk of the entire fruit. The Jambo Apple (*Jambosa vulgaris*, or Rose-Apple), is a beautiful fruit in appearance, being the fac-simile of a snow-white Pear formed of wax, with a pink blush upon one side. Its exterior beauty is all that it can boast of, as the fruit itself is vapid and tasteless. In fact, all wild fruits are for the most part great exaggerations. I have seen in a work on Ceylon the miserable little acid berry of the Rattan, which is no larger than a Currant, described as a fruit: Hawthorn berries might with equal justice be classed among the fruits of Great Britain. I will not attempt to describe these paltry productions in detail. There is necessarily a great variety throughout the island; but their insignificance does not entitle them to a description, which would raise them far above their real merit. It is, nevertheless, most useful to a sportsman in Ceylon to possess a sufficient stock of botanical information for his personal convenience. A man may be lost in the jungles, or hard up for provisions in some out-of-the-way place, where, if he have only a saucepan, he can generally procure something eatable in the way of herbs. It is not to be supposed, however, that he would succeed in making a good dinner; the reader may at any time procure something similar in England, by restricting himself to Nettle-tops—an economical, but not a fattening, vegetable. Anything, however simple, is better than an empty stomach; and when the latter is positively empty, it is wonderful how the appetite welcomes the most miserable fare. At Newera Ellia the jungles would always produce a supply for a *soupe maigre*. There is an esculent Nillho (a *Nymphaea*, or Water Lily), which grows in the forest in the bottoms of the swampy ravines. This is a most succulent plant, which grows to the height or length of about seven feet, as its great weight keeps it close to the ground. It is so brittle that it snaps like a Cucumber when struck by a stick, and it bears a delicate dark blue blossom. When stewed, it is as tender as the Vegetable Marrow; but its flavour approaches more closely to that of the Cucumber. Wild Ginger also abounds in the forests. This is a coarse variety of the *Amomum zingiber*. The leaves, which spring from the ground, attain a height of seven or eight feet; a large crimson fleshy blossom also springs from the ground in the centre of the surrounding leaf-stems. The root is coarse, large, but wanting in fine flavour, although the young tubers are exceedingly tender and delicate. This is the favourite food of elephants on the Ceylon mountains; but it is a curious fact that they invariably reject the leaves which any one would suppose would be their choicest morsel, as they are both succulent and plentiful. The elephants simply use them as a handle for tearing up the roots, which they bite off and devour, throwing the leaves on one side. The wild Parsnip is also indigenous to the plains on the mountains. As usual with most wild plants of this class, they have little or no root, but run to leaf. The seeds are very highly flavoured, and are gathered by the natives for their curries. There is likewise a beautiful orchidaceous plant, which is very common throughout the Patinas on the mountains, and which produces the very finest quality of Arrowroot. So much is this valued in the Napaul country in India, that I have been assured, by a person well acquainted with that locality, that this quality of Arrowroot is usually sold for its weight in rupees. In vain have I explained this to the Cingalese; they will not attempt its preparation, because their fathers did not eat it; and yet these same men will walk forty miles to cut a bundle of sticks of the Galla Gaha tree for driving buffaloes!—their fathers did this, and therefore, they do it. Thus this beautiful plant is only appreciated by those whose instinct leads them to its discovery. The wild hogs plough up the Patinas and revel in this delicate food. The plant itself is almost lost in the rank herbage of the Patinas; but its beautiful pink Hyacinth-shape blossom attracts immediate attention. Few plants combine beauty of appearance, scent, and utility; but this is the perfection of each quality—nothing can surpass the delicacy and richness of its perfume. It has two small bulbs about an inch below the surface of the earth, and these, when broken, exhibit a highly granulated texture, semi-transparent like half-boiled Sago. From these bulbs

the Arrowroot is produced, by pounding them in water and drying the precipitated farina in the sun. There are several beautiful varieties of orchidaceous plants upon the mountains; among others, several species of the *Dendrobium*. Its rich yellow flowers hang in clusters from a withered tree, the only sign of life upon a giant trunk decayed, like a wreath upon a grave. The scent of this flower is well known as most delicious; one plant will perfume a large room. There is one variety of this tribe in the neighbourhood of Newera Ellia, which is certainly unknown in English collections. It blossoms in April; the flowers are a bright lilac, and I could lay my hand upon it at any time, as I have never seen it but in one spot, where it flourishes in profusion. This is about fourteen miles from Newera Ellia; and I have never yet collected a specimen, as I have invariably been out hunting whenever I have met with it.—(*Baker's Ceylon*.)

TO CORRESPONDENTS.

ASPARAGUS SEEDLINGS (G. R.).—Do not let them remain on the productive beds. Much better practice would be to remove them, if you require them, to a bed by themselves as soon as their stems fade, otherwise pull them up at once. They are robbers of the soil. Guano sprinkled on the haunts of the ants will drive them away. Want of water, or too much heat in the tan, or the roots of the Melen plants having penetrated the tan, may, one and all, be the causes of their shrivelling.

DISEASED VINE LEAVES (B.).—They are mildewed. Dust them both above and below thickly with flowers of sulphur, and do not syringe them. Let the sulphur remain on. Give plenty of air, and water the roots of the Vines liberally. We should give them liquid manure once a-week.

ALOE LEAF DISEASED (Sweet William).—It is ulcerated; and this, probably, originated in the leaf being scorched by the sun's rays concentrated by a knot in the glass. If this were not the case, then the roots do not supply sufficient sap to the leaves. Remove the old soil from the surface, and put in some fresh and more fertile soil.

MINULUS (Annie).—We do not know what kind of *Minulus* you mean. There are many varieties of the *M. luteus* and the *M. cardinalis*, both of which are all but hardy herbaceous plants, and the *luteus*, and some of its varieties we have had self-sown in our cool borders, and flowering like common weeds. From these any number of pots might have been filled in the autumn, for winter protection either in a frame or greenhouse, where some of the better varieties would produce an imposing effect. Seeds should be sown in pans or boxes; and as the seeds are so small, no earth-covering should be given, but the soil kept properly moist, though not stagnant. The seeds soon vegetate; and when the seedlings are sufficiently large enough, they should be transplanted into other pots or boxes, or out in the open cool borders. Young tops of any of the varieties will root freely at any time during the spring or summer months; or the plants may be divided at any time or season of the year. The plants sent were Rue and Rosemary.

NAME OF ORCHID (W. C.).—It is a variety of *Catasetum tridentatum*.

NAMES OF PLANTS (R. Wiltshire).—1. *Funkia carulea*. 2. *Hieracium aurantiacum*. 3. *Betonica incana*. 4. *Tradescantia Virginica*. 5. *Veratrum nigrum*. 6. *Phalaris arundinacea*, var. *variegata*, var. *picta* of Babbington, the Painted Grass, Ribbon Grass, or Gardener's Garters. 7. *Lychnis chalcidonica*. 8. *Veronica Virginica*. 9. *Rudbeckia digitata* (?) 10. *Veronica*, sp. uncertain. 11. *Veronica media* (?) 12. *Spiraea lobata*. 13. *Veronica incana*. One of the best. 14. *Cercis siliquastrum*, the Judas tree. All good things. The *Rudbeckia* is one of the tall growers, and the most worthless among them.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

AUGUST 10th. ORMSKIRK and SOUTHPORT. Sec., Mr. James Spence, Ormskirk. Entries close the 22nd of July.
AUGUST 19th and 20th. BRADFORD. Secs., Mr. A. Hardy, Bowling Old Lane, Bradford, and Mr. E. Blackburn, Black Bull Inn, Ive Gate, Bradford. Entries close August 12th.
AUGUST 23rd and 24th. WHITBY. Sec., S. Burn, Esq., 1, East Terrace, Whitby. Entries close August 13th.
AUGUST 25th, 26th, and 27th. MACCLESFIELD. Sec., Mr. W. Roe. Entries close August 10th.
AUGUST 27th. HALIFAX. Sec., William Irvine, Holmfild, Ovenden, near Halifax.
AUGUST 29th, 30th, 31st, and SEPTEMBER 1st. CRYSTAL PALACE. Poultry, Pigeons, and Rabbits. Sec., William Houghton. Entries close Saturday, July 30th.
SEPTEMBER 22nd. BRIDGNORTH. Sec., Richard Taylor, Bridgnorth.
OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. Sec., Geo. Griffiths, 7, St. Swithin Street, Worcester.
NOVEMBER 28th, 29th, and 30th, and DECEMBER 1st. BIRMINGHAM. Sec., Mr. J. Morgan, Bingley Hall, Birmingham.

JUDGES.

THE office of Judge at a Poultry Show is hardly a desirable one. Sam Slick would say, "human natur" would not allow it to be. Losers cannot be as well contented as winners; at least, many of them cannot. But it is seldom there is the general dissatisfaction we sometimes hear mentioned. We are not about to draw any fanciful picture; but we will sketch the truth, and many of our readers will, we think, agree with us.

Say two or three gentlemen of unquestioned ability and honour undertake the office at a large Show; let the first class be what it will, Spanish or Dorking; there are twenty-five entries, and the first prize is a noble one, worth fifteen guineas;—so much the worse for the Judges. Well, the prizes, four in number, are awarded. For some hours every one is satisfied. There has not been a doubt expressed. The feeling has been rather admiration at the knowledge that could decide where the merit was so nicely balanced than any desire to question. At last, there comes one of the unsuccessful winners—the taker of one of the lower prizes. He is met at the entrance by friends who chafe him somewhat by telling him how nearly he won the first prize, and how valuable it is. Not one of them expresses any doubt as to the merit of the decisions. But "human natur" is riled. The smile with which he met his friends is gone, his teeth are set, and discontent is plainly written on his face. Of course, he makes straight to the class in which he is an exhibitor. A man never can avoid looking at that which is unpleasant. He gazes fixedly at the birds that have beaten him, and then at the cards, "First Prize, and Silver Cup." Slowly he goes to his own. He forgets that he is envied by the twenty other exhibitors who have won nothing. He forgets he has accomplished more than he ever did before, and knows only he has failed in winning the silver cup. As he looks at his birds, he is fixed on their merits, and that point in which they excel becomes the most important of all. It hides every defect and deficiency; and then, after all things have been harmonious during the hours that have elapsed since the Show was opened, a new commander appears, and, according to our exhibitor, general Dissatisfaction takes the command. Like a skilful tactician, he takes his post opposite that which he believes to be the weakest point of the enemy. He will break his line. He will get in the thin end of the wedge. But he will seek for allies. Friends first. Many of them care nothing for the matter, and side with him at once. Others urge him on for fun, and advise all sorts of extreme measures. Then he gets a little knot around him. This attracts passers-by, and then he explains that he thinks he ought to have had the great prize; but, at all events, he can point out two or three pens that should have had it, if he did not. Then he calls up three or four friends, and they agree it is a great shame. It thus becomes spread through the building. Every one has heard it, and the papers are full of remarks about general Dissatisfaction.

What is the truth? That out of fifty classes, and some hundreds of exhibitors, one dissatisfied person can succeed in causing it to be believed there was general dissatisfaction. Letters have appeared in other publications, stating, first, that Judges should be requested to be in attendance the first day to explain their awards to exhibitors. Who, is it thought, would undertake the office on those terms? Fancy such an unfortunate at Birmingham or the Crystal Palace! As there are few classes without dissatisfied or disappointed, and none in which the unsuccessful would not like to know why they were so, and as all would have an equal claim on the Judge's time, it would be necessary to post some such notice as the following:—

"The Committee beg to inform exhibitors the Judges will be in attendance to explain their awards. At Dorkings from 9 till 10. Spanish, 10 to 11. Game, 11 to 12. Hamburgs, 12 to 1, and so on. At one o'clock they will be allowed half an hour for refreshments. No exhibitor may detain them more than five minutes in one class."

Then it is proposed that Judges be ballotted for. There is no objection to this, except, as has happened sometimes, that those elected may decline the office. The mistake is, that an erroneous idea seems to be abroad that it is an enviable post, and so lucrative or so desirable that the gentlemen who act at most of the principal Shows will submit to any terms rather than forego the office. This is altogether a mistaken notion. There is no profit to it; and were it not for the love of the pursuit, or, perhaps, for the pleasure of meeting old friends, many of those who now act frequently would relinquish a pursuit in which they are exposed to unjust attacks.

Those who are so ready to cavil, are, of course, better judges than those they find fault with. Why do not they try their hand?

CLASSIFICATION OF FOWLS.

(Continued from page 250.)

FOLLOWING the order of classification laid down in my last, we now arrive at the division, or group, of NON-SITTERS. These

are dividable again into three sub-groups or families, each containing several varieties.

The first of these are the *Spanish* fowls, one of our most fashionable and esteemed breeds; but I am at a loss to understand why only one variety of this breed is patronised, seeing that there are others. I think it but common justice that this breed should have as many classes as any of the other breeds.

In furtherance of this view, I would give them four classes. First, Black Spanish; second, White; third, Blue; fourth, any other colour or variety.

Then follow the Top-knotted or Crested breeds. Although all these have crests of feathers on their heads, and have been usually regarded as only sub-varieties of one breed, yet I am inclined to believe there are three distinct breeds, or varieties, each containing many sub-varieties.

These three varieties I refer to are:—First, the crested fowls with feathered feet, as the *Sultans*; the beardless-crested fowls, as the *St. Jago*, or Black-crested White; and the bearded-crested fowls as the so-called *Golden* and *Silver Polish*. Therefore, without being so liberal to them as to the other breed, I cannot compress them into less than seven classes.

FIRST FAMILY GROUP.

First, the *White Sultan*, or *Seraï Täook*. Second, any other variety of feather-footed crested fowls, as the tailless-crested fowl, or *Ghondook*; and, although it may seem anomalous, yet I think the combless and crestless *Guelderlands* belong to this family group.

SECOND FAMILY GROUP.

First, the *White-crested Black* fowl. Second, any other variety of beardless, clean-legged, crested fowls, as the Black-breasted White; the old Golden-spangled (*i.e.*, white crests and white spangles), the White-crested Blue, and the beardless White, &c.

THIRD FAMILY GROUP.

First, the Golden-laced or Pheasant-marked (*spangled*); bearded and crested fowl (*Polish*). Second, the Silver-laced, or Pheasant-marked (*spangled*); bearded and crested fowl (*Polish*). Third, any other variety of bearded and crested fowl, with which may be included the old bearded and crested *Hamburgh* of the old writers, and the similar breeds variously known as *Russian Muffles*, *Siberian Pheasant* fowls, *Jews*, and *French Muffles*.

I am not sufficiently acquainted with the French *Crève Cœur*, to decide if it belongs to the second or third family group of crested fowls.

Lastly, among the Non-sitters come the rose-combed prolific layers. These seem all to owe their descent from the Silver-pencilled fowl, known variously as the *Turkish fowl*, *Corsican*, *Dutch every-day-layer*, or *Dutch Pencilled fowl*, and from which have sprung seven or eight very distinct sub-varieties, which, in time, have become local celebrities; and, strange to say, though these are essentially English, they have lately all been named *Hamburghs*. I think that on account of their English origin, their rose-combs, and their rival countries,—the name of York and Lancaster Roses, or simply Roses,—would be far preferable.

To do these Rival Roses, or *Hamburghs*, justice, they require nine classes:—

First, *Silver-pencilled*, as being the original variety of the breed. Second, the Golden-pencilled. Third, Yorkshire Golden Pheasants. Fourth, Yorkshire Silver Pheasants. Fifth, Red-caps. Sixth, Creoles, or White-necked Silver Pheasant fowls. Seventh, Golden Moonies. Eighth, Silver Moonies, or Captain Cranmer's dark-necked Silver Pheasant fowls; and Ninth, Black, White, or any other variety of the rosy-combed everlasting layers.—B. P. BRENT.

(To be continued.)

BEES WORKING UNDER THE FLOOR-BOARD.

"I HAVE a common old-fashioned butt of bees which I hoped would have swarmed this season. For the last two weeks they have been hanging below the board; and on looking a day or two ago I discovered they had made a large piece of comb under the board, and were working well. I have reversed a straw skip and fixed it to the board.

"Would you advise me to leave them to work all the rest of the summer, or take it off in September, as I want the bees to swarm early next year in order to put them in a better hive?"—AN OLD SUBSCRIBER, *North Petherton*.

[Your stock of bees had better be left undisturbed working

beneath the floor-board for the remainder of the season, when the combs may be removed. The stock hive being filled, it would have been well had you placed it upon an eke, or given additional storing room in some other way, early in the honey-gathering season. When pressed for space it is not unusual for the bees to betake themselves to the nearest adjacent spot for the necessary accommodation, and they will readily go either upwards or downwards.]

BEES MAKING COMBS WITHOUT CLUSTERING.

SOME writers seem to think that bees can neither secrete wax nor build combs without clustering. I may have already mentioned that they can do both, and observed that the greater part of combs formed in the additional room in strong hives are made by the bees working upwards instead of the usual way—downwards. When so at work they seldom cluster, and the materials are ejected from their mouths, and masticated in the same manner as when they work up old wax. Perhaps the whole of the materials used in sealing up the cells are obtained in that way. This last idea is rather new to me; and I was led to it only lately by having observed them in the act of closing up their cells. In good seasons the quantity of wax required for this purpose is, perhaps, more than some imagine. This is readily known by the difference of produce of wax from sealed and unsealed combs. It is a question, however, what becomes of the broken remains of wax. Perhaps a part of them is attached to the edges, or mouths, of the cells, and crumbs which fall about the hive are used again for the same purpose in the following season. In favour of this I have to observe that if old combs were sealed up with fresh deposits of wax, the mouths of the cells would, of course, appear nearly as light as new ones. However, those who doubt that bees can work or secrete wax without clustering, have only to observe them working upwards in bell-glasses, or even in the common way during very hot weather. In such cases they proceed somewhat like humble bees, which never cluster when building combs. I strongly suspect that these have not the power to secrete wax through the segments under their abdomens, but eject it from their mouths similarly to the other way I have described, speaking of hive bees.

I may note, that to-day (July 12th), the thermometer stood at 88° in the shade at about three o'clock. Likewise, that I have heard of the honey running out of a Neighbour's hive, owing to the combs collapsing from the effects of hot sunshine. I need hardly observe that shading would prevent such calamities.—J. WIGHTON.

BEES USING OLD WAX.

MY experience of this summer goes far to confirm what Mr. Wighton has lately advanced respecting bees constructing combs of old wax.

I had a swarm placed in a hive, at the top of which I fixed a large piece of old comb as a guide to commence upon, but which, from the weight of the swarm I suppose, fell down on the hive-board, where I allowed it to remain. It has gradually disappeared under the efforts of the bees, and now only a very small portion remains; meanwhile the combs they have built have a dark band, two inches deep along the top, the colour of the old wax.

During the last few days the bees in this neighbourhood have been working vigorously, and if this weather continue, will, doubtless, make up for the loss of time occasioned by the cold winds so prevalent earlier in the summer.—A YOUNG APIARIAN.

OUR LETTER BOX.

MOULTING (*J. M. K.*).—We do not advise you to pull out the sickle feathers of your Game cock; let them fall in the ordinary way, and he will moult new ones. A tail should never be pulled out, as it is considered the most exhausting part of the plumage to reproduce. This bird has moulted all his feathers but the sickles. These were produced about four months since after being lost accidentally.

DROOPING COMB OF SPANISH COCKEREL (*T. P. W.*).—There is no remedy while the bird is very young, and the comb soft; but when it has nearly attained its growth, the position of the comb may be changed by fastening it with silver wire in that which is desired. It is not a difficult nor a long operation, if the comb is smooth and even; but if there is a hollow, like a thumb-mark in it, just above the head, it will be a long time altering its shape.

WEEKLY CALENDAR.

Day of M th	Day of Week.	AUGUST 9—15, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
9	Tu	Borbonia cordata.	30.268—30.075	79—52	N.E.	—	37 af 4	34 af 7	morn.	11	5 19	221
10	W	Virgilia sylvatica.	30.027—29.927	83—59	N.E.	.12	38 4	32 7	37 0	12	5 11	222
11	Th	Erica formosa.	29.979—29.945	85—50	N.E.	—	40 4	30 7	44 1	13	5 2	223
12	F	Erica gemmifera.	29.998—29.906	88—50	S.	—	42 4	28 7	56 2	14	4 52	224
13	S	Erica Irhyana.	29.955—29.917	80—45	S.W.	—	43 4	26 7	rises	☺	4 42	225
14	SUN	8 SUNDAY AFTER TRINITY.	29.942—29.858	70—51	N.E.	.79	45 4	24 7	39 a 7	16	4 31	226
15	M	Erica ohliqua.	30.025—29.956	75—53	N.E.	.01	46 4	22 7	49 7	17	4 20	227

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 78.5° and 54.1°, respectively. The greatest heat, 96°, occurred on the 12th, in 1840; and the lowest cold, 41°, on the 14th, in 1836. During the period 148 days were fine, and on 76 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

BULBS.—The selections for winter and spring flowering to be made as soon as possible, choosing the most suitable varieties for each season; to be potted at two or three intervals for succession. To be potted in light fibrous turfy loam of a sandy quality, and placed in a dry situation; to be covered with three or four inches of old tan or coal ashes.

CAMELLIAS.—The large, old specimens that have set their flower-buds to be carefully supplied with water; for if they are allowed to get too dry at the roots they are apt to drop their buds. Young vigorous plants, on the contrary, will require to be watered rather sparingly, to prevent them making a second growth.

CINERARIAS.—Shift as they require it, and let no neglect as to watering, &c., cause a check to their growth.

CLIMBERS.—To have a succession late in the season when flowers become scarce, it is advisable to cut them back for that purpose, more especially the climbers on rafters or ornamental trellises.

NEW HOLLAND PLANTS.—If any have been standing out of doors for some time, it is advisable to remove the best and most tender varieties to the cold pits, or other secure situations, to avoid the danger and risk of exposure to wet or windy weather.

SOILS.—Now is a favourable time to collect soils of different sorts for future use. The advantages of forethought for such matters will become evident when the time for use arrives. Leaf mould, decomposed sheep, deer, and cowdung, road and river sand, old Cucumber, Melon, and other such soils, to be put in separate heaps in a shed, or any other dry place, protected from drenching rains. Each sort to be numbered, or named, that no mistake may occur when wanted.

STOVE AND ORCHID-HOUSE.

All plants intended to flower this autumn to be regularly supplied with water and occasionally with liquid manure; but all the other stove plants to be watered more sparingly after this time, and the water to be given early in the morning. The house to be shut up early in the afternoon with a strong sun heat. Slight fires to be made in the daytime, if the weather is dull, so that plenty of air may be given to the plants.

FORCING-HOUSES.

FIGS.—If the nights are cold, the house or pit should be closed early, for the benefit of the second crop of fruit.

MELONS.—Withhold water when the fruit is ripening, as a sudden supply at that time very frequently causes the fruit to crack and become worthless. Keep the shoots so thin that every leaf may receive the benefit of the light. Do not expose the fruit to the sun's rays till it is fully swelled. Give a supply of manure water to the late crops, and thin out useless laterals. It is advisable to paint the interior of the frame, or pit, with sulphur:

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this, with slight syringings and shutting up early while the sun shines upon it, will keep down insects.

MUSHROOMS.—Collect some very short stable-litter and horse-droppings, and turn them over frequently with the addition of a small portion of turfy loam until they are well incorporated. When moderately dry, to be packed on shelves or in boxes, and be well-beaten down in layers four or five inches thick, till the bed is the required thickness—from a foot to eighteen inches; for success will depend in a great measure upon the solidity of the bed. To be spawned when there is a brisk heat.

PINES.—If a strong body of fresh materials have recently been added, the watch-sticks should be frequently examined, and any approach to a burning heat to be counteracted by lifting the pots, &c. Fruit recently started and swelling off to have every encouragement for the next two months. Shut up early, to secure a strong amount of solar heat. Keep all the growing stock warm and moist, syringing them lightly twice a-day.

VINES.—The early-forced houses, where the wood is nearly ripe, would be benefited by free exposure to the air; but if the lights are required to remain on, cleanliness should be observed, and all laterals kept down. When the fruit is swelling or colouring, and when the weather is wet or cloudy, a gentle fire, if then applied, will expel damps, and be in other respects very beneficial to them. Stop all useless growths in the late houses; do not remove the leaves to expose the fruit to the sun, unless they are very thick indeed, as they are the principal agents by which nutriment is carried to the berries.

VINES IN POTS.—When the leaves begin to fade, to be removed to the north side of a wall, and the pots to be laid on their sides, to keep the roots dry. A little litter thrown over the pots will protect them from sudden changes.

WILLIAM KEANE,

FLOWER-BEDS.

WHAT do you think now of the beautiful *Delphinium formosum* as a bedder? The whole country sounded with its praises last year, and the year before that "for bedding purposes." But one-half of the praising people have a very faint notion of a bedding plant, or what a flower-bed really is. Any perennial plant like this *Delphinium*, which does not last in bloom to the end of the season,—say the end of September,—is not one whit better for the gardener, or for the beds, or for economy of time and money, than the *Clarkia pulchella*, or any other of the six-week annuals. But a good blue is such a rare thing among bedders, that *Delphinium formosum*, and probably two or three more of that breed, will always pay to be kept as annuals by the flower gardener; but they cannot be used where the planting of beds is on the principle of composition of colouring,—so to speak. The balance of power in Europe, or in a parish vestry, is a balance which is well understood by all the men in the country; but the balance of the power of colours in a flower garden is not understood by one man out of fifty thousand. Politics and parish business for the men,

because they understand them, and flower-beds for the women, for the very same reason. The vast variety of the styles and colours of dresses, and the perpetual and periodical changes in the fashions, have so worked up the female tastes and fancies, that you can hardly meet with a woman in her own garden, or by the side of her wardrobe, who cannot give a better idea of putting colours together in such and such quantities, or balance their powers, than a Prime Minister.

Then, when blue forms its own share in a balance of colours in a flower garden, that blue must run on to the end of the season; but should it fail, or be over in mid-season, it is far better for the balance of power that the space should be empty for the rest of the season than that plants of any other colour should be put in place of the blue ones. Therefore, *Delphinium formosum* is not, and never will be, more a bedding plant than one of the common annuals. It makes a glorious bed, nevertheless, while it lasts, and it brings to our minds just now the value of the promenade style of flower gardening for all amateurs who possess less than four or five acres of a flower garden. Kew is the best place to see examples of this modern style of planting along the great walks; and there is a very good specimen of composition-planting in front of the large conservatory there.

There is not a yard of composition-planting at the Crystal Palace, or in any public garden I know about London, except the terrace garden at Kew. In that terrace garden such a plant as *Delphinium formosum* can never be used, because there is nothing else in existence which gives the same style of growth and colour to succeed it. But, in promenade-planting you are not tied to composition; if every pair of beds are of the same size, shape, and colour, it is all that is wanted, even if the walk is a mile long. Two beds of the *Delphinium formosum* could stand at regular distances the whole way; and when they were over you might use just as many kinds of any other plant, or plants, to succeed them, without any derangement of your colours. Take up the *Delphinium formosum* as soon as it is over for bloom. I merely mention it as a key plant which is very likely to be in extensive use, and going out of bloom just now, and all manner of herbaceous plants ought to be treated like the key plant as soon as they are out of bloom. Cut them down first, and take them up carefully; shake all the soil from their roots, and see and judge if it is safe to divide them. Though without a good practical eye there is some difficulty in judging such things.

The key plant—this *Delphinium*—is to be cut down quite close to the surface of the ground the moment it is past its best; and that is the best way to do all the perennial *Larkspurs* when they stand up and down on the mixed border. Then, if the autumn is fine, or if the weather is very hot at the time of cutting down, and good seasonable rain comes soon after, they start into a fresh growth, as they did last March, and go at double the speed—more of an “express” style of growth—than in the spring, and many of them will bloom a second crop late in the autumn. But, out of regular flower-beds, they ought to be lifted the moment they are cut down, and be treated so as to come in just as well, if not better, another year. Shake every particle of the soil from the roots of those plants you intend to bed out next year. To have them transplanted into the kitchen garden, or in the reserve ground, with balls of earth to the roots, would be ruination to their effect next year in the beds,—too tall already—and half as tall again next year by that plan.

It is true we could train them down as some people do; but it is only here and there, and in large establishments, that one can spare much time in training down plants. I like to train all plants which have a natural bent for training; but I must confess my dislike to universal training, and more especially to such as are of the same rigid, upright style of growth as our key plant,—the *Delphinium*. After getting every particle of the soil from

among the roots, you will find a rootstock—a thick neck with fang roots at the bottom, and fibry roots all round the sides; cut in all the fibry roots to one inch of the rootstock, and cut back the fang roots to two inches from where they fork out from the rootstock—then your plants, or roots, will be something after the manner of old *Dahlia* roots, full of eyes at the top part, and fleshy enough to be parted into halves and quarters. The first year that a *Delphinium formosum* flowers after being raised from seeds it can only be divided into halves, or two parts. The second, or third flowering, leaves the roots so strong, that they ought to be cut into four parts, or quartered. Then these pieces are to be planted six inches apart, in rows, out of sight, and they will be ready to come back to the same, or to other beds, as soon as the bedding plants are housed for the winter, or not till the end of next February, if the beds are not fit for them. In November they could be planted in the same bed with spring bulbs, such as Crocuses, Hyacinths, Tulips, and Narcissuses; and any of these bulbs might remain without being disturbed till this time next year, when all could come up at the same time.

Flower of the Day makes, perhaps, the best edging to a bed of *Delphinium formosum* that could be planted just inside the ring of *Crocus*, so that the *Crocus* need not be removed oftener than once in three or four years;—all the rest of the bulbs would come up with the *Delphinium*. Every syllable up to this point has been practically tested and substantially proved with my own hands, so there need be no fear or any hesitation about doing it all over the three kingdoms.

The next part of the story is from the common stock of general garden experience, beginning with “What shall we plant to succeed the *Delphinium*?” and the question will be answered in five hundred ways, and each way will be the best of its kind, according to the fancy of the owner. Whatever you fancy will be the best for you. I have my fancy too, but it is not worth one farthing more than your fancy. It is only the best for me because I like it best; and the reason why I like it best is simply that it is very easy to do, and very little trouble in doing it. I have done it, and others have also done the same thing exactly, but did it quite contrary to the laws of the effect of flowers in a mass. Is it not curious that one man can do a thing right, and another man do exactly the same thing and still be wrong? Now I shall explain how this was; but first I must say, that it is hardly worth talking about, were it not for the principle involved. The planting of acres depends on the same rule as that for one bed, which is a circle and only six feet in diameter.

The two beds I am now going to describe were edged with a ring of *Flower of the Day*, which was not disturbed; and the inside of both was planted with mixed *China Asters* just showing the colours. In the one, the tallest plants were put in the middle; and the dwarfiest ones on the outside, next to the *Flower of the Day*. All the tall *Asters* were shades of blue; and the darkest were put in the second ring next the centre. The five centre plants were of a greyish-blue colour; then a dark and a lighter blue; and the ring of dwarf ones were all but white-flowered, but being the dwarfiest they were put on the outside of the rest of the *Asters* in that one bed. Now read the colours from the outside of all to the centre of the bed and say what you think of them. All variegated *Geraniums* in edgings, except the *Golden Chain*, tell for white; *Brilliant* does not make an edge, and its variegation does not make a white: all the rest of them that I know, are whites. Then this bed was:—first row, white; second row, another kind of white—awfully bad; the third ring, a greyish blue—more awful still; next the white; the fourth, dark blue—very good; and the centre a lighter blue. Whoever saw *Arcturus* in the tail of the comet last autumn must see, easily enough, how much more easy it is to murder colours and ruin the effect which even the simplest colours, or the weakest

colours, would produce if they were put together properly. But what struck me so forcibly at the time was, that a countryman, who knows very little of real flower gardening, should have made a perfect model, according to some people's ideas on the subject, and a perfect muddle at the same time. The form of that bed was perfection, and the symmetry could not be excelled out of a mould. The foundation and the corner-stone of planting may thus be without fault or blemish, and yet the effect be not worth one straw.

The second bed was not quite a model of symmetry; but the colours helped each other as far as is possible for the same shades to do when placed in the most favourable positions. Next the *Flower of the Day* were two rings of a rich rosy Aster; then two rings of greenish-blue, a lighter and a darker grey, the lighter one being next the rose; the centre was dark blue. That is how a lady would place the same shades; but try them any other way, and the second would be as effectual as the first.

The whole reminds me of a unique bed which is now in full beauty at the Experimental Garden—not a bed of *Unique* Geraniums, but a kind of bed, of which, perhaps, there is not a second in the three kingdoms. It is rather a mysterious bed in the making—it is a rustic bed, and yet it is not rustic. There was an old Yew tree there as thick as my chest, which was cut down to the lowest tier of branches,—say five feet from the ground,—that tier of branches forms now a rich ring of flourishing Yew, and inside that ring, resting on the stump, or trunk, stands a wooden vase four feet in diameter and entirely out of sight by the ring of fresh Yew. Then round the bottom and bole of the ancient Yew, eight or nine Yew plants, four feet high, are planted; both sides of the plants being closely clipped. A small copper wire fastens the young to the old Yew so closely, that you cannot see any of the old trunk, and the tops of these young plants mixing with the tier of old branches, help to make the top ring; and one might fancy the whole to be one young healthy, vigorous Yew tree, cut on purpose to look like the centre of a rustic bed.

Round this Yew pedestal to the Yew vase is a bed four feet from the Yew to the outside of it, which is raised nine or ten inches from the ground by an edge of "rustic" brickbats, which are covered with Ivy. Now, there is a rustic bed for you which will last as long as nobody knows how! None of those extravagant rickety things which are no sooner up than they must be patched, and botched, and propped up to keep them from going to smash by the next gale, with no end to the expense about them.

You may fix on any knoll, however, which you can see from your drawing-room window; and there, on the top of that knoll, get a man to dig out a hole as for a gate-post—say three feet deep; put in a post of the hardest and most durable wood; fix it as firmly as possible, and let four or four feet six inches of it be out of the ground; trench a four-feet-wide space round the post two feet deep, but keep from the ramming space around the post itself; then raise a rustic edge to the trenched bed by placing first a row of stones, or brick-bats, *on the edge of the grass*; then, just on the edge of the dug, or trenched space, plant very small Ivy plants one foot apart, and draw them to you between the bats; then raise your edging to your own liking, and keep filling in the soil to make the surface of the bed as high, or nearly as high, as your edging of bats, or wherever it may be; then fasten up the Ivy against the edging, and in three months you will have a substantial brickbat edging that will last a lifetime, and a covering of Ivy on it which will endure longer still, if well managed.

Now go to a nursery and get four or five Yew plants a foot or more higher than the top of your post; clip one side of them into the bone before you plant them against the post. After planting, clip the other side, and make it look just like a green column of Yew that might have been growing there for years and years. Fasten them

well near the top of the post, and put your own fancy of a vase on the top—something in basket and rustic style—which the tops of the Yews will soon embrace, and form themselves into the same shape, and hide the vase altogether.

Plant what you like on the top; have what trailers you choose to hang over the edges, and to be fastened to sprigs of the Yew all round; but plant the bottom as I say. Over the top of the brick edging with the Ivy covering plant a row, *at the end of April*, of newly-divided plants of *Viola calcarata*—a very light blue wild Violet, which blooms till October, be the season ever so hot; it will partly hang down over the Ivy, and the rest will make a close compact fringe on the top of the edge of the bed. Six inches inside this, plant a ring of the *Lady Plymouth* variegated Geranium, or the variegated *Oak-leaf*, as we say, all young plants of exactly the same size. Inside that, plant either two rows of young *Baron Hugel*, or one row of it *next the variegated*, and a row of *old plants* of *Harkaway* next. And a little in advance of the central Yew column, plant a ring of some pure white *Nosegay* Geraniums. The lumpy-headed ones, after *Boule de Nieve*, are not so good in this fancy. Now, when all this is done, you will have the very best-looking rustic bed in all England—the very cheapest, too; for if you keep the soil renewed from time to time, and do not forget to tar the inside and the outside of the box or vase, as you may call it, on the top, that bed will be quite fresh and sound for your grandson. Or you might have the centre pillar of brick in cement, or stone in good lime mortar, but never cover it with Ivy. Yew is the right thing, and the true background colour for the flowers just mentioned.

D. BEATON.

THE WATERPOT: ITS USE AND ABUSE.

A SEASONABLE subject, surely. Few parts of England but have felt the pressure of the recent heats; and few gardens but have had a thorough acquaintance with the waterpot. The evil effects of severe droughts are patent to every one; not so manifest, however, certain benefits which advantageously spring from such a condition. As to the latter, let me remind our fruitists of the influence such droughts have on our fruit-bearing trees—those, I mean, which are gross. Neither may we forget, that in our climate, which is, on the whole, noted for its humidity, the influences of a bright, warm, and dry period in facilitating the fructification of ensuing years. In all these things it is well for us to keep both eyes open to see the good as well as the evil, all things being so compounded on this side the moon. But to turn for a moment to the ill effects of drought and extreme heat, we have become in this respect a susceptible people: we have not only our native trees, shrubs, and vegetables to deal with, but denizens of other climes, requiring, on the whole, a variety of treatment. The Peruvian who glories in his Maize little fears the sun overhead—his plants are adapted to the climate: he is more likely to meet with a *coup de soleil* than a crop of Maize offended by solar heat. But when we take into consideration the different departments of gardening, flowers in all their kinds, vegetables, fruits, and even trees, we shall presently find that the cultivator of a British garden is a most vulnerable character. Under circumstances of great heat with drought, the flowers only attain half their compass and durability; the vegetables lose that high succulence and tenderness which we all delight in; the fruits are ill fed or crack, and are hurried away prematurely before any possible chance of satiety can occur; and our shrubs, and even trees, become lean, withered, and yellow. Such, in the main, are the effects resulting from severe drought and intensity of heat. All this points plainly to one of the first duties of the landscape gardener, who is entrusted with the disposal of a plot of ground intended to be worthy the name of an English garden,—no mean title as the world goes,—to secure a provision for water. Our worthy neighbours the Gauls are famous neighbours too; but we can beat them with our Cabbages and our tall chimnies.

To revert to the matter of water: What about supplies? we have had the good fortune to be intimately acquainted with I hydraulic ram—one of the very best neighbours I have had for more than thirty years. As Shakspeare said in "Midsummer

Night's Dream" of "Mustard Seed," I think, "I desire farther acquaintance with you, Master Mustard Seed." But what useful things these are. We have a pool, seventy acres, and a capital incline or fall, within a quarter of a mile of offices, gardens, &c., and we have first-class mains and second-class mains, and lots of sprouts and branches. Thirty years since we had to pump all our water; and it required a garden man one half his time to accomplish it, together with the well failing occasionally. I, therefore, consider a hydraulic ram as of incalculable importance in gardens of any pretensions.

As to the practical matter of watering, I fear it is still much misunderstood by many. There are two or three ways of watering things. Most of the readers of THE COTTAGE GARDENER are, no doubt, aware that there is a process of the kind which leads to that mysterious effect called "scalding." This is a common saying in Cheshire amongst the farmers. When a soft shower descends on the parched ground after intense heat, they say, "It's no good; it will only scald."

There's something in a name. But what is this scalding? In former days dowagers would not hear tell of watering if the sun shone; but this summer our waterpots have been clattering with a burning sun overhead. However, could it be so arranged, I should not choose such periods for watering; but in these rural districts the labour we employ is of a different character from that of towns. What our farmers mean, however, by "scalding," is that the crop droops more after a superficial rain for a day or so than it did previously. The fact is, that after intense sunshine a light shower with a cloudy interval after, succeeded by intense sunshine, is likely to produce such effects. Before the rain the plants had ceased to develop in a liberal way, consequently, presented no increased surface for evaporation; but all of a sudden they are filled with fresh juices, and enlargement of the perspiratory surface occurs, without a reserve of any power to fall back on in the hour of need. What wonder, then, that their greatly-increased transpiring powers should speedily overtake the "rooting of the supplies," which must come from that great power called root action?

I name this—a farming point—simply to call the attention of amateur gardeners to the waterpot and its vagaries; for be it remembered that this little instrument is but an imitator on a small scale of a cloud—certainly but a sorry representative. We can do, in an ill humour, by the waterpot what the cloud sometimes does—we may give "a lick and a promise." But this brings me to the point I was desirous of attaining: to prove that in summer one thorough watering is worth a host of sprinklings. It so happens that I have a case in point—a matter of actual practice just passed my elbows. The last week but two was a triumphant one for the thermometer; 80° to 90° plentiful as Blackberries. Well, we had a lot of Roses and the old herbaceæ were beginning to look seedy, and all for the lack of moisture. I employed one man for nearly four days to continue watering from morning till night. As soon as he had gone through the series to begin again at the first end, and continue the process. How different were the effects of this as compared with mere sprinkling! the latter evaporated in an hour or two afterwards.

People frequently forget the vast difference there exists in the temperature of the soil in the height of summer and the cold autumn or spring months. Certainly, the waterpot, lightly handled, may serve to carry away heat and to arrest transpiration for a little while; but I fear the balance is against it as a principle. To be sure, if flowers, or any vegetables, are moist enough below, and only suffering from suddenly-acquired heat, sprinklings of this kind may prove more than innoxious at any time. We all know that, as to flowers—our bedding pets—if a dry and hot period ensue after planting them out, they need some assistance. Such are generally on raised beds—the beds in relief, as our painters would term them. And we know that water will run down hill by mere gravitation. Here, then, is one cause of unsatisfactory watering: the water does not enter to any depth; sixty per cent. runs away. But the mere escape is not all: the surface of the soil becomes what is technically called "glazed," and I need hardly urge on the common sense of our readers that such conditions of soil are quite inimical to the well-being of vegetation. What I want to urge here as to this matter is, the absolute necessity of making what are practically called basins, or hollows, around the stem of every plant where we intend to be in earnest: I speak, of course, of raised ground. This makes all the difference; the watering without basins, in dry and hot periods on an incline, is sheer nonsense. In ordinary

seasons we need scarcely be so fussy, as some people would call it; but these peppering summers put us on our extras.

One benefit of basin watering is, that it is eligible to water in the basins at any hour whatever. In watering with the rosed waterpot, it is folly in dry periods to think of finishing any given bed, or plot, at once. The best way is to group a lot of business of the kind, and to cause the operator to go over the whole slightly; and as soon as he has gone once through to begin again at the beginning, and go over all again; and this course repeated until the moisture has thoroughly penetrated the mass. No class of flowers require or deserve liberal waterings more than our Roses; for, whatever the soil, they will assuredly fall away if suffering from drought.

One thing may be observed as to the principles of watering: it is a capital medium whereby to convey manurial matters to the roots, if needed. People talk of top dressings to be carried down by rains, and such will perform all that ought to be expected of them; but if you want speedy action, and your plant loves those ammoniacal and other properties which a good manure is sure to contain, let me advise you to try good Peruvian guano. I almost blush whilst I write to think that such a national affair should have been permitted to be so little known—it deserves a broader basis. Everybody seems to shudder involuntarily when I expatiate on the merits of good Peruvian. "Ah," say they, "but what a price!" This is indeed a pity; but, nevertheless, I must affirm that it is the friend of the gardener, if well understood. As for using deer's dung, or sheepdung, it is all very well; but there is always too much time consumed in the operation. Speaking on this head, I remember a joke about concentrated manures which occurred with the great Lord Kames, or Sir John Sinclair, or some great agriculturist, who, warning up in company over the prospective benefits of concentrated manure, turned prophetic by observing that the time would come when a man would carry as much manure in his waistcoat pocket as would manure an acre of land. Thereat the company stared; and he would, doubtless, have passed as a new light, but that some wag observed, "Yes, and bring the produce home in your coat pocket."

In conclusion, let me advise that what is called sprinkling or damping the surface be estimated at its real value. If it follows where moisture already exists, and as a mere refresher, good; but if it is intended to feed all the roots, which is the legitimate object of summer watering, I can but affirm that it will, in many cases, do more harm than good.

R. ERRINGTON.

OBTAINING WELL-RIPENED WOOD,

AND INDUCING A FRUITFUL HABIT IN PLANTS.

AMONG the many varieties of the genus *homo*, it will, I think, be conceded that we Englishmen, notwithstanding our generally sunless skies and other difficulties of a climatic character, occupy a very prominent niche in the Temple of Horticulture.

In our gardens we find cultivated the fruits of the tropics, those of more temperate climes, with the productions of colder ones; and by various appliances we succeed in giving to each a degree of excellence unsurpassed in the land of its nativity.

By the use of glass-cases, aided by the modern improvements in heating and ventilating, we are enabled to convert the poor, mawkish, half-ripened Fig of our open walls into one of the richest jellies that can be imagined; while our English hot-house Grapes bear the most honourable comparison with those of foreign growth—being incomparably superior in size, colour, and flavour.

This country has made great advances in the scale of civilisation during the last quarter of a century, and many of those things which were regarded as luxuries have become by their constant use almost necessities of common life. Free trade has too widely extended the use of fruits and vegetables amongst the manufacturing labourers; and the rapidity of transit of produce from one part to another places the peasant almost upon an equality with the peer in obtaining fruit and vegetables; while the cottage gardener yields an immense supply of the finest and most succulent kinds.

In cultivating the fruits or the flowers of warmer climates, we have to labour under the disadvantage of a great deficiency of sun in a general way; and we have to compensate for this by shutting up early with a considerable amount of it. Thus making play with our heat while light prevails (I speak here of the full season of culture), and then letting the temperature subside for

the night, to be again augmented in the course of the following day.

No principle in horticulture can be more sound than the rule of increasing our temperature during the day and lessening it at night; and much of the success of modern forcing is traceable to such treatment. I remember in my boyhood how different was the practice of the good old Mawes and Abercrombies of those days.

The really skilful gardener must always bear in mind that in cultivating plants he has two objects in view. The one to give them the greatest amount of vigour, and to ensure the fullest and most succulent development of their parts, as in the whole of the plants used as vegetables for the table, the goodness depends upon their rapid growth: and the other to arrest the over-luxuriance, and in its lieu to gain fruit-bearing qualities. The exercise of this power demands experience; and it must ever be remembered that luxuriance and fruit-bearing are quite antagonistic qualities, and that most processes which arrest the one promote the other.

Cutting the roots of trees, called also "root pruning," is one of the chief means taken to induce a fruit-bearing state. Although much practised in England now, it has not been many years in vogue. The original merit of it is due to the Dutch gardeners, who were great adepts in transplanting and fruiting Peach trees by its aid. Of their skill I have seen many admirable examples in the vicinity of Haarlem.

To my very clever and intelligent friend, Mr. Rivers, of Sawbridgeworth, is due the chief merit of introducing this plan into our English gardens; he, with an acumen peculiar to himself, foresaw the advantages of it, and practised it largely, giving the public the benefit of his great experience. Since it has been more generally understood and practised, most persons agree that under good hands it is one of the best checks for over-luxuriance with which we are acquainted.

Another plan of arresting luxuriance is that of stopping the shoots, and for this we are much indebted to the same indefatigable cultivator. It must always be admitted that preventives are better than remedies; and if simply stopping or rubbing off a shoot will prevent a malformation in growth, it is better to do it at once than eventually to be obliged to have recourse to the cutting-off of a large branch. I have for some years practised a modification of this stopping with my Pear trees. About the end of July, or the beginning of August, I go over the summer shoots, and puncture them by bending with the hand, leaving them hanging; the consequence of this is, that I get many blossom-buds formed on the base of the spur, which, if the shoot had been cut off, would have been only long, vigorous branches.

The command which God has given to man over His works is marvellous. He has arranged them all with the most perfect method, order, and regularity; and it is for us to study, and by His aid to understand them, so that we may turn them to our own advantage and to His honour. Callous and unsusceptible indeed must be that mind which cannot feel interested in observing the beauty of His designs, and the harmony with which they are arranged for the production of perfection.

There is yet another mode by which we can influence the productive qualities of plants of an arborescent or suffruticose kind: I mean that of grafting. For instance: the Pear, if grafted on the Quince, grows with less vigour, and is more fruitful than it is when grafted upon the Pear stock, but the Quince will not do well upon all soils. I found it not to succeed upon a dry, gravelly soil, but to require a strong, muctuous loam. I mentioned this to Mr. Rivers, who told me, that in order to ensure its success, it would be necessary to top-dress the surface round the plant; but finding the Pear stock fully answer my purpose, I have not tried this.

One of the greatest difficulties we have to contend with arises from our too-generally deep and moist borders, which, aided by wet and sunless autumns, excite growth at a period when rest should be secured, and leave it unripened and immature. From such growth fruit must not be looked for. Here the shallow platforms and impervious bottoms of Mr. Errington come to our aid, giving us a permanent and safe deliverance from these evils. His theory provides practical remedies, and nothing in the gardening world can be sounder or more patent.

But after we have done all that is possible in inducing a state of fruitfulness, we still have a bad climate to contend with; and the labours of a whole year depend upon the capriciousness of a single night. Poor encouragement this! it will be said. But the skill of the gardener can do no more than induce a fruit-

bearing habit. There must be an appliance for protection from frost.

Some time ago, the vexed question of protection was mooted in a contemporary. The opinions of many good gardeners were given, and the sum of the whole evidence appeared very conflicting. If I were to express my own opinion upon this very interesting subject, I should say—protect; but do it well, and have your materials so fitted that they can easily be removed. My friend, Mr. Ingram, of Frogmore, has done this with unvarying success, as all the world knows. I believe that protection where too close does more harm than good, drawing and blanching the blossoms, and making them fall off. No doubt many of the failures of crops where protected are owing to this. I had a magnificent crop of Apricots last spring, which were all destroyed by the disastrous frosts; not having sufficient protection after they had reached the size of Walnuts. Can any one wonder, then, that I advocate most strongly the adoption of it as a principle?

In the few brief remarks which I have made it will be seen that, although the laws of God work with the greatest precision, yet He has left many points for us to exert ourselves in thinking of and turning to account; and let those young men whose eyes may scan this page reflect how important is observation, and endeavour to cultivate this faculty by all means in their power; by so doing they will discover the harmony of design, see the beauty of His plans, and

"Look through Nature up to Nature's God."

—H. BAILEY, Nuneham.

BRITISH POMOLOGICAL SOCIETY.

ON the 4th instant was the Anniversary Meeting, at which there was a good attendance. It was held, as usual, at St. James's Hall, Regent Street. R. Hogg, Esq., Vice-President, in the chair.

The Secretary read the financial report, from which it was satisfactory to learn that there is a balance in favour of the Society. A revision of the rules of the Society then took place; and the most important alteration which was made, was, that in future all private gentlemen and nurserymen who may from this time be elected members of the Society shall pay an annual subscription of £1 instead of 10s., but that professional gardeners continue as before at the subscription of 10s. A rule was also made that members who shall be in arrear for two years in their subscription, and if on the lapse of one month after application from the Treasurer the amount due still remain unpaid, the person so failing shall be removed from the list of members.

In revising the list of office bearers, it was decided that in future there shall be six Vice-Presidents, and a Council to consist of twenty-five members instead of twelve. In consequence of Mr. Davidson having resigned the office of Secretary, it was determined to advertise for a gentleman to succeed him, and the election to take place at a meeting of Council to be held on the 18th of September.

Mr. Newton, gardener to the Lord Chief Baron Pollock, was elected a member of the Society.

Mr. Ivory, of Dorking, produced a noble bunch of his *Buckland Sweetwater* Grape, weighing certainly not less than 2 lbs., broadly shouldered, and remarkably well set. The berries were roundish, inclining to oval, and were just beginning to assume their amber tinge. They were very richly flavoured and vinous. Altogether this variety has stamped itself as one of particular excellence, and as a valuable addition to the collection of White Grapes which ripen perfectly in an ordinary vinery.

This was the Meeting appointed for awarding premiums of three guineas, two guineas, and one guinea, for the best collections of Grapes. Mr. Newton, gardener to — Graham, Esq., of Enfield Chase, brought a very fine collection, consisting of twenty varieties, which excited a great deal of interest. Among the Muscats were *Muscat of Alexandria*, *Money's Eschollata*, and a seedling between *Syrian* and *Muscat of Alexandria*. The bunch of *Money's Eschollata* was long and loose, much more so than that of *Muscat of Alexandria*, and the berries were well developed, thin-skinned, and with a fine Muscat flavour. The seedling very closely resembles this in appearance, but was thicker skinned, and firmer in the flesh, and it was not so highly ripened. Mr. Newton was requested to exhibit the seedling again later in the season. There was a fine bunch of *Gros Gromier du Cantal*, large and tapering, with flame-coloured berries, but

the flavour is nothing remarkable. Several varieties of *Black Hamburgh* were exhibited, one of which, known as *Merrick's Victoria*, was a good bunch, with large, well-developed berries, but not highly coloured. *Wilmot's Hamburgh* was, as usual, thick-skinned and coarse. *Diamond Drop* is a Sweetwater-looking variety, and may, possibly, be the same; but the firmness of the flesh induced us to believe that it might be the true *Bar-sur-aube*, but being rather unripe this point could not be determined. A variety called *White Tokay* was a very large bunch, with large, ovate berries, without any Muscat flavour. We have frequently met with this variety in collections under the same name, and it appears to us to be the true one, although there are several others that are met with under that designation. *Griffin's Muscadine* has a long, loose bunch, with small amber-coloured berries, which are very sweet, and appears very much earlier than the *Royal Muscadine* from the same house. *Black St. Peter's*, or *Oldaker's St. Peter's*, was very well ripened, and very rich in flavour. Many of the other varieties were not sufficiently ripened, —such as *Morocco*, and some others. Mr. Newton also brought a dish of *Irish Peach Apples*, perfectly ripe. He was awarded the highest prize for the collection of Grapes.

Mr. Newton, gardener to the Lord Chief Baron Pollock, exhibited remarkably fine specimens of *Grosse Mignonne* Peach, from an orchard-house without artificial heat. Also two shoots bearing fruit, taken from a tree of *Bellegarde*, which exhibited this extraordinary peculiarity, that one had all the leaves with round glands, and in the other they were perfectly glandless. In the latter instance the leaves were very much longer and narrower than the other, and the fruit much smaller and very much later in ripening. The same gentleman also exhibited branches of *Isabella* and white *Magnum Bonum* Plums, laden with very fine fruit, from trees grown in pots in an orchard-house, which exhibited very successful and excellent cultivation. The fruit was well grown, and the leaves healthy and luxuriant.

A dish of *French Crab Apples*, of last season's growth, were exhibited in good condition by a member of the Society.

THE SCIENCE OF GARDENING.

(Continued from page 261.)

MANY other saline manures have been employed by cultivators with various degrees of benefit, such as *common salt* (chloride of sodium); *bleachers' refuse*, principally composed of sulphate of soda and common salt; *cubic petre* (nitrate of soda); *gypsum* (sulphate of lime); *saltpetre* (nitrate of potash); and *soda ash*, containing, among other salts, carbonate of soda, common salt, and sulphate of soda.

As already stated, some salts are essential, and still more are useful for promoting the growth of plants; an important consideration, therefore, is contained in the answer to the query so often put—How should saline manures be applied? The answer is, that, when practicable, they ought to be in very small quantities and frequently, *during the time of the plant's growth*. No plan can be worse than soaking seed in a saline solution for the purpose of giving such salt to the plant of which it will be the parent. It is saddening the embryo with a superfluity totally useless to it; and, if the solution does not injure the germination, it will be washed away most probably before the roots begin to absorb such nutriment.

We may observe here, appropriately, that, to arrive at a correct knowledge of manures by means of experiments, far more forethought and care are requisite than are usually bestowed upon them.

1. A space should be left without any manure being applied, otherwise there will be no satisfactory basis of comparison.

2. The larger the space subjected to experiment for each manure, the more entitled to confidence will be the result. The reason for this is, obviously, that no two seeds will produce plants of precisely equal prolificacy. Imperfect ripening of the parent seed, variance in the depth at which the seed is buried, and many other circumstances, will be more liable to have a controlling effect over the weight of the produce from a small plot of crop than from a larger. A dozen super-prolific or defective plants, on a square rod of ground, will have an influence on the result when calculated per acre, that would be scarcely appreciated if the experiment were made on an eighth of an acre.

3. If manures in solution are employed for soaking the seed, a similar quantity of seed of the same sample should be soaked for a similar length of time in simple water. If liquid manures are given experimentally to plants during their growth, other plants

of like number and growth, and in every respect treated similarly, should at precisely the same time have simple water applied to them.

4. There should be a certainty that the manure employed is pure. No wonder that experiments are discrepant when Mr. E. Solly has detected adulterations in fertilisers to the amount of 97 per cent.! Even when the dung of animals is employed, it varies most essentially, and according to the food on which they are kept. The richer their nourishment the more abounding are their excrements in the salts of ammonia and other fertilising matters.

Some manures are beneficial by absorbing moisture from the atmosphere. This property is, at least, as useful to ground that is aluminous as to that which is siliceous; for it is equally useless to either during such periods of the year as are characterised by a plentiful deposition of rain; but in the drought of summer, when moisture is much wanting to plants, it is beneficial to both: in very dry seasons it is even of greater importance to clayey than to light soils; for vegetation on the former suffers more from long-continued drought than on the latter, inasmuch as that moisture being equally exhaled from each, the surface of the clayey soil becomes caked and impervious to the air—the only grand source of compensatory moisture that is available to the languishing plants, and which is more open to those which grow on light and, consequently, more pervious soils.

The following table of the comparative absorbent powers of many manures is extracted chiefly from "An Essay on the Uses of Salt in Agriculture," by Mr. Cuthbert Johnson:—

1000 parts of	Parts.
Horsedung evaporated previously to dryness, at a temperature of 100°, absorbed during an exposure of three hours to air saturated with moisture at 62°	145
Putrefied tanners' bark, under similar circumstances (66°)	145
Unputrefied tanners' bark	115
Cowdung	130
Pig ditto	120
Sheep ditto	81
Pigeon ditto	50
Refuse marine salt (60°)	49½
Soot (68°)	36
Burnt clay	29
The richest soil (in one hour)	23*
Coal ashes	14
Lime (part carbonate)	11
Crushed rock salt	10
Gypsum	9
Chalk	4

The absorbing power of a manure is much influenced by the state in which it is presented to the atmosphere. In a finely-divided state mere capillary attraction assists it; hence, as before insisted, the importance of keeping the soil frequently stirred by hoeing, &c. But a mere mass of cotton, by means of capillary attraction, will absorb moisture from the air, yet it parts with it at a very slight elevation of temperature; it is of importance, therefore, to ascertain which are the manures that not only *absorb* but *retain* moisture powerfully. The following results of my experiments throw some light on this point:—

100 parts of	Minutes.
Pigdung evaporated to dryness at a temperature of 106°, and then moistened with 6 parts of water, required for being reduced to dryness again, at the above temperature	135
Horsedung, under similar circumstances	90
Common salt	75
Soot	75
Rich soil	32
Chalk	29
Poor soil (siliceous)	23
Gypsum	18

These experiments point out a criterion by which we easily ascertain the comparative richness of any two given soils or manures; the most fertile will be the most absorbent and retentive.

Some persons have argued that the moisture-retentive powers of manures must be injurious to plants by withholding that moisture from their roots; but these theorists argue without an

* Sir H. Davy.

acquaintance with facts. Such manures have a greater attraction for moisture than is possessed by atmospheric air; but it is much less powerful than the power of suction possessed by roots. There is no saline body which these will not deprive of the moisture it has absorbed—nor will any be surprised at this, when they know that the root of a Pear tree, half an inch in diameter, absorbs water with such force and rapidity as to cause mercury to rise up an attached tube eight inches in six minutes.—(*Hale's Veg. Statics.*, Exp. xxi.)

Some manures increase the growth and vigour of plants by stimulating their absorbent and assimilating organs. This will only be admitted by those who allow that plants are gifted with sensation—a topic to be more fully discussed hereafter; but a few illustrative facts may be here stated. The Venus's Fly-trap (*Dionæa muscipula*) has jointed leaves, which are furnished on their edges with a row of strong prickles. Flies, attracted by honey which is secreted in glands on their surface, venture to alight upon them; no sooner do their legs touch these parts than the sides of the leaves spring up, and locking their rows of prickles together, squeeze the insects to death. The well-known sensitive plant (*Mimosa sensitiva*) shrinks from the slightest touch. *Oxalis sensitiva* and *Smithia sensitiva* are similarly irritable, as are the filaments of the stamens of the Berberry. One of this irritable tribe, *Hedysarum gyrans*, has a spontaneous motion; its leaves are frequently moving in various directions, without order or co-operation. When an insect inserts its proboscis between the converging anthers of a kind of Dog's-bane (*Apocynum androsaemifolium*) they close with a power usually sufficient to detain the intruder until death. How often have we heard a farmer reply to an observation upon the tardy growth of Turnips, "They will not grow apace, until their leaves are large enough for the wind to take hold of them;" and this is only because plants cannot be healthy and vigorous without exercise. Mr. Knight found that trees which were regularly shaken every day in his greenhouse grew more rapidly and were stronger than others which were kept still.

The stimulating powers of excrementitious manures arise from the salts of ammonia they contain. Sir H. Davy found vegetation assisted by solutions of muriate of ammonia (sal-ammoniac), carbonate of ammonia (volatile salt), and acetate of ammonia. Night soil, one of the most beneficial of manures, surpasses all others in the abundance of its ammoniacal constituents in the proportion of three to one. It may be observed, that the nearer any animal approaches to man in the nature of its food, the more fertilising is the manure it affords. We believe that a languishing plant—one, for example, that has been kept very long with its roots out of the earth, as an Orange tree recently imported from Italy, might be most rapidly recovered if its stem and branches were steeped in a tepid, weak solution of carbonate of ammonia, and, when planted, an uncorked phial of the solution were suspended to one of the branches, to impregnate the atmosphere slightly with its stimulating fumes.—J.

(To be continued.)

NOTES ON NEW OR RARE PLANTS.

LEMONIA SPECTABILIS. *Lindl.* Nat. ord., *Rutaceæ*. Native of Cuba.—Stove evergreen shrub, of somewhat irregular habit. Stem strong, covered with thick, rough, brown bark. Branches numerous, moderately strong, becoming brown as the stem. Leaves opposite, ternate, upon short stout petioles; leaflets unequal, the centre one longest and broadest, elliptical; lateral ones lanceolate, elliptical, entire, dark green and shining above, paler beneath. Flowers axillary and terminal, pedunculate, with two or three flowers upon each peduncle, all of which are shortly pedicellate. Calyx enclosed by two closely-embracing bracts, which are green, and larger than the calyx. Corolla tubular; tube short, swelling towards the limb; limb irregular, composed of five elliptical lobes, the three lower of which are largest, rosy purple. Stamens growing upon the sides of the corolla. Pistil short, erect, with a five-cleft stigma.

A very useful plant, blooming in June and July, not profusely, but continually and regularly. It is but little known in gardens, although it has been in cultivation for seventeen or eighteen years. A compost of about three parts good fibrous loam, and one part of peat, with a free mixture of sand, is an excellent soil for it. Cuttings root freely enough in the usual way for stove plants.

CLERODENDRUM SPLENDENS. *Thunb.* Nat. ord., *Verbenacæ*.

Native of Sierra Leone.—Moderately-strong growing climber. Branches quadrangular, rusty brown. Leaves opposite, on very short petioles, ovate, lanceolate, acute, sometimes acuminate, waved at the margin, and slightly reflexed; veins prominently reticulate, dark green and shining above, paler beneath, with the midrib very prominent. Inflorescence in terminal panicles. Calyx furnished with five acute, brownish segments, quite smooth. Corolla tubular; tube slightly bent and short; limb divided into five unequal, concave, elliptical lobes, of intense crimson. Stamens much exserted, somewhat curved, two short and two long. Pistil much exserted with a bifid apex.

An excellent stove climber, blooming in June very profusely. It does best planted out in a compost of turfy loam and peat, or leaf mould. It should be allowed a good rest in winter; and if freely cut back in spring, it will shoot away strongly. Cuttings of short-growing shoots, in spring, root pretty freely.

PAVETTA CAFFERA. *Thunb.* Nat. ord., *Cinchonacæ*. Native of the Cape of Good Hope.—Stove evergreen shrub of excellent, compact habit. Branches stiff, woody, round. Leaves obovate or elliptical, acute or obtuse, shortly petiolate, smooth, thick, coriaceous. Inflorescence in dense, terminal, corymbose panicles, the pedicels of which are furnished with extremely minute bracts. Calyx composed of four erect, stiff, acute, short segments, dark green. Corolla tubular, about half an inch long, narrow, and nearly equal throughout, with a limb of four, spreading, nearly elliptical, white lobes. Stamens four, alternate to the lobes of the corolla, ultimately reflexed, and lying over the outside of the tube of the corolla. Pistil long, exserted nearly an inch beyond the mouth of the corolla, and surmounted by a slightly club-shaped stigma.

A most useful stove plant, blooming in June and July very freely. It bears considerable resemblance to *Leora*, to which it is nearly allied. It is not so partial to bottom heat as *Leora*, but in other respects it requires the same treatment. Good loam and peat, with plenty of sharp sand form an excellent compost for it, and cuttings of the young wood in spring root readily.

BLABEROPUS VENEATUS. *Dec.* Nat. ord., *Apocynacæ*. Native of the East Indies.—A branching, stove evergreen, growing to the height of about six feet. Branches strong, roundish, abounding in the milky sap so characteristic of this family of plants. Leaves shortly petiolate, very acute, long, linear-lanceolate, undulate, entire; midrib prominent; veins many, nearly parallel, with one marginal vein. Inflorescence in terminal corymbs, with smooth pedicels, furnished with very small scale-like bracts. Calyx of five minute, green, acute segments. Tube of the corolla an inch or more long, narrow, and swelling slightly towards the limb, which is composed of five, deeply cut, twisted, lanceolate, reflexed lobes, pure white; throat narrow, somewhat hairy. Anthers nearly sessile, placed near the throat of the corolla, but enclosed in it. Style long, filiforme, with a roundish, small stigma.

An excellent stove plant, and well deserving a place in choice collections. The flowers, which are always profuse, are also fragrant; and though not lasting individually, there is a long succession of them in June and July. Turfy loam and peat, with plenty of sand, make a very suitable soil for this plant; and cuttings of moderately-ripened shoots root moderately free.—S. G. W.

THE COLOURS OF FLOWERS PROMOTED BY CHARCOAL.

A FRENCH amateur in the Paris "Horticultural Review," states—"About a year ago I made a bargain for a Rose bush of magnificent growth and full of buds. I waited for them to bloom, and I expected Roses worthy of such a noble plant, and of the praise bestowed upon it by the vendor. At length, when it bloomed, all my hopes were blasted. The flowers were of a faded colour, and I discovered that I had only a middling *multiflora*, stale-coloured enough. I, therefore, resolved to sacrifice it to some experiments which I had in view. My attention had been captivated with the effects of charcoal, as stated in some English publications. I then covered the earth (in the pot in which my Rose bush was) about half an inch deep with pulverised charcoal. Some days after, I was astonished to see the Roses which bloomed of as fine a lively rose colour as I could wish. I determined to repeat the experiment; and, therefore, when the Rose bush had done flowering I took off the charcoal and put

fresh earth on the pot. You may conceive that I waited for the next spring impatiently to see the result of this experiment. When it bloomed, the Roses were, as at first, pale and discoloured; but by applying the charcoal as before, they soon resumed their rosy-red colour. I tried the powdered charcoal likewise in large quantities upon my Petunias, and found that both the white and the violet flowers were equally sensible to its action. It always gave great vigour to the red or violet colours of the flowers, and the white Petunias became veined with red or violet tints. The violets (colours?) became covered with irregular spots of a bluish or almost black tint. Many persons who admired them thought that they were new varieties from seed. Yellow flowers are, as I have proved, insensible to the influence of the charcoal."

[Such experiments are easily tried by any cultivator, and we recommend any of our readers who have time and opportunities to try the above experiment, not only on Roses or Petunias, but also on Dahlias, Verbenas, &c. Possibly by such means the ardently-longed-for blue Dahlia may be attained. The result of such experiments and any details will be welcome for these pages.—EDS.]

HOT WATER FOR GREEN FLY.

We have made some experiments in order to ascertain how high the temperature of water may be, without injury to very young shoots of Roses that may be covered with green fly or aphids, when applied as a remedy. We find the insect readily killed at 120°. One plant of *Paul Perras*, which was plunged three times, for a second each time, into water at 135°, has a very few black spots on the tenderest of the leaves. The insects were instantly killed. Water at this temperature is, therefore, perfectly safe for any thing. As a remedy against all soft-skinned insects, we regard this as the most simple and effectual discovery ever made.—(*American Gardener's Monthly*.)

THE ROSE OF JERICHO.

ANASTATICA, from *Anastasis*, resurrection; plant recovering its original form, however dry it may be, by immersion in water.

A. Hierochuntica. Native of arid wastes in Egypt, near Cairo; Palestine and Barbary; on roofs of houses and among rubbish in Syria; of Arabia in sandy deserts on the coasts of the Red Sea. Stem much branched, somewhat dichotomous, dwarf. Leaves oblong or ovate, narrowed at base. Pods somewhat pubescent. The leaves fall off after flowering, and branches become dry, hard, and lignous, and rise upwards and bend inwards, and contract into a globular form. In this state the plant is easily withdrawn from the sand and blown by the wind from the desert into the sea, and as soon as it comes in contact



Fig. 1.

with the water (fig. 1), it gradually expands, the pods open and relieve the seeds, which are thrown again upon the shore by the tide, and scattered with the sand through the desert by the wind.

A description of this plant by M. Pomet, chief druggist to

Louis XIV. of France, agrees essentially with the above by Don.

A plant related to the Ferns (fig. 2), the *Lycopodium lepidophyllum*, is frequently called the Rose of Jericho from its habit of expanding whenever it is placed in water. It is so named even in the collections of some of our most learned societies. Mr. J. E. Mitchell, of Philadelphia, has a very handsome specimen.

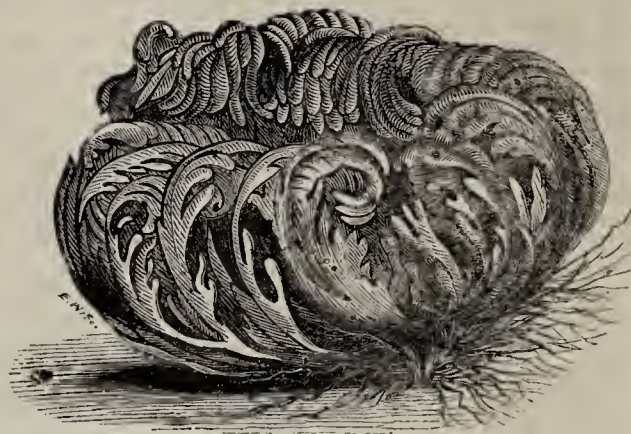


Fig. 2.

In connection with the above, the following account, taken from a charming little volume entitled "Stray Leaves from the Book of Nature," may interest your readers. I hope that this remarkable plant may be instrumental in drawing the attention of some of them to the study of botany, as it did the accomplished author of that book, which I would recommend to the perusal of all lovers of Nature.

"Long years ago I was in the Holy Land. It was the last day I was to spend near Jerusalem; and as the sun sank towards the blue waters of the Mediterranean, I found myself once more sitting on the banks of the Jordan. The air was perfectly calm; the tolling of a convent bell came faintly over the plain from Bethlehem, and mingled its well-beat cadences with the gentle playful murmuring of the sacred stream at my feet. By my side sat an Arab, tranquilly following with his eye the light clouds of his pipe, as they gracefully rose up in the clear, blue ether, but apparently buried in deep thought. I had known him in his desert home, I had eaten his salt. He was a Sheikh, and revered as a saint among his brethren. He had now come with me from the far South: first my guide, but now my friend and companion.

"Abu Abdallah was his name; so I said, 'Abu Abdallah, do you believe in God?'

"'Thou sayest it, O brother!' was his quiet answer.

"'But, Abu Abdallah, I fear you do not believe that your soul is immortal;' for the old Arab, though my friend for the while, was a sad thief, and when he swiftly rode through the desert, there were voices heard, it was said,—mournful voices of men,—who called for the sweet life he had taken from them.

"He gazed at me for an instant from the depth of that unfathomable eye,—the precious heirloom of a son of the Orient,—but vouchsafed not a word.

"I was struck by his silence, asked again.

"'Oh, brother! oh, brother! thou wrongest me!' he said, and quietly rising, he seized upon a little shapeless mass that lay half hid in the fragrant herbs at our feet, and gently pushing it into the purling stream, he added, 'Has not the God of our fathers, whose prophet is Mahomet, given us the Rose of Jericho? And does not my brother, who reads the books of the wise men of the Franks, know that the burning sands of the desert are its home; that it delights in the fiery winds of the West, which scatter the caravan, and strew the sands of the Sahara with the bones of the traveller? There it grows and blossoms, and our children love it. But the season comes again, and it withers and dies. And the dread simoon rises and seizes the dry, shrivelled roots that my brother beholds there; and on the wings of the tempest the Rose of Jericho rides far, far East, until it falls upon holy soil. Now, let my brother wait, and he shall see!'

"And we did wait: waited until the shadows grew long, and dreamy dusk covered mountain and plain. And the little shapeless mass became a miracle indeed, and right before our eyes! The roots had expanded, the leaves had unfolded, life and breath had returned to the dead child of the Sahara, and the very

blossoms begat to show and to rival the faint rosy tints of the evening sun!

"I never forgot that lesson of immortality; I never forgot that Rose of Jericho. On my return to Europe I learned that botanists called it 'Anastatica,' the flower of resurrection. I wished to know more about it, and that was the way I first learned something about plants."—Pp. 118, 119, 120.

[Attention has been called to the subject; and it has been found that in many cases, even in the collections of learned societies, the *Lycopodium* above figured, and a native plant, have got into the place of the genuine kind. The American plant is much the more beautiful and interesting, but has, as yet, not had the good fortune to become so celebrated in the narrations of



Fig. 3.

travellers. Fig. 3 shows the American plant when expanded. We are indebted to the kindness of Mr. W. G. Armstrong, of Philadelphia, for the description and drawings from which we have made the above engravings. The drawing of the Rose of Jericho was made from a specimen brought from Syria by the Rev. Lyman Coleman, and still in his possession. — ED. of the *American Gardener's Monthly*.]

NOTES FROM PARIS.

THE BOIS DE VINCENNES.

Of all the improvements of late years which have been made in this famed capital, the formation of this magnificent public park is assuredly one of the most important. The Bois de Vincennes is to the east end of Paris what the Bois de Boulogne is to the west—an extensive wood, laid out in long winding walks and spacious drives, with an immense lake which branches off in different directions among the trees. It is situated about a mile and a half from the Place de la Bastille, in a straight line by the Faubourg St. Antoine, one of the widest and finest streets in Paris, not unlike any of the grand approaches of the English capital. But in a few months more the new Boulevard, from the Château d'Eau to the Place du Trône, will form a nearer and more direct road to it. It is not probable, however, that either this park or its fine approaches will ever be much frequented by the fashionable throngs that fill the beautiful avenues of the west end every afternoon.

The village of Vincennes is composed of a few straggling houses; but every day the number is increasing, and on every side of the road, all the way out, there are some pretty little villas with neat gardens in front, somewhat like what may be seen in the suburbs of London. It is here that is situated the celebrated fortress—a large and gloomy-looking place, with several thousand soldiers within its walls. From this point the wood extends a mile or more to the north and east; the chief public road passing through it, and from which glimpses of the grounds and the lake may be seen at certain intervals. Some fine private mansions have been built in different parts of the wood near the lake and the principal drives; and the ground immediately sur-

rounding them has been neatly laid out and planted with choice evergreens and showy flowering shrubs. Among the latter are a few of the commoner Rhododendrons and Azaleas. There is a neat cottage at one of the openings near the public road: it is built on a small island very prettily laid out. In the vicinity are a rustic bridge, and a number of large rocks thrown up here and there, and studded with Ferns and other suitable plants. In several other places, too, there are pretty little nooks in the same way. But the great charms of the wood are its beautiful, long, winding walks among the dense high trees. There is, too, a quiet, solemn grandeur about the place, which contrasts strangely with what people are accustomed to in Paris. There are some well-arranged groups of trees here and there near the lake which have an excellent effect; and there are even some good samples of Coniferae planted singly on the more prominent parts of the lawn. The lake is very large, and when the shrubs planted along its banks have grown a little more it will be very beautiful; but as yet the water has not been permanently let on, and there is indeed a good deal to be done before the works can be said to be fairly finished.

This park will be chiefly frequented by the great mass of the working population of Paris who crowd the faubourgs and suburbs of the east end; for although, in general, this extensive district is open enough, and is even not wanting in little gardens, still there have till now been no complete facilities for the recreation and open-air amusements of those who are always occupied in workshops and factories.

EXPERIMENTS WITH CARROTS.

M. Vilmorin has lately published the results of an experiment which he made, in order to ascertain what time and cultivation were necessary to improve the wild Carrot and bring it to the condition in which it is grown for the market. A first sowing of seed, taken from the wild Carrot, was made in March, 1833. The plants came up and grew well enough, but of course the roots were not eatable; and it was only with the fourth generation, in 1839, that anything like improvement was perceptible. But even at the present day the experimental variety may be easily distinguished from all the others in cultivation. Its roots, though of excellent quality, still preserve a gross exterior. The leaves, too, are of a deeper green than in the old sorts.

It appears from this experiment that fully twenty years of cultivation are required to bring a wild Carrot to a condition fit for the table; while in less than two years, if left to itself, it will again degenerate to its primitive state.

THE WEATHER AND CROPS.

The weather this year has been remarkably favourable for the grain crops, and all round Paris the harvest is already finished in the most satisfactory manner. A good deal of rain fell about the 20th of June, and then there was fine warm weather for a month. We had one or two rainy days towards the end of July, with a great deal of thunder and lightning. Before that the glass stood at near 95° in the shade for ten or fifteen days. But since the rain it has continued at about 80°. Preserving fruit is not abundant this year, and, consequently, it is much dearer than usual. The markets, however, are well supplied at present with Peaches, Figs, Melons, and Apricots. Plums are not so plentiful. For about a week, too, Grapes and Pears have arrived in considerable quantities from the more southern departments.—K.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 260.)

PEARS.

Belle Noisette. See *Bellissime d'Hiver*.
Belle sans Epines. See *Hampden's Bergamot*.
Belle Vierge. See *Jargonelle*.
Belle de Zees. See *Bonne d'Eze*.
Bellissime. See *Windsor*.

BELLISIME D'HIVER (*Angleterre d'Hiver*; *Belle Noisette*; *De Bure*; *Téton de Venus*).—Fruit very large, turbinate, flattened on the apex. Skin fine green, changing to brownish-yellow on the shaded side, and fine lively red next the sun; covered all over with russety dots. Eye large, set in an open depressed basin. Stalk an

inch long, inserted in an irregular cavity. Flesh white, tender, fine, sweet, mellow, and free from grittiness. A stewing pear, in season from November to April.

BELMONT.—Fruit large, obovate. Skin yellowish-green, tinged with brown next the sun, and covered with dots. Stalk very long, slender, and curved. Flesh coarse, but sweet, and juicy. I have found this one of the best stewing or baking pears in use in November and December.

BENVIE.—Fruit small and obovate. Skin yellowish-green, sometimes tinged and streaked with dingy red next the sun, almost entirely covered with thin grey russet and large russet specks. Eye large and open. Stalk long, fleshy at the base, and obliquely inserted. Flesh yellowish, buttery, juicy, and perfumed.

A Scotch dessert pear of great excellence, ripe in August and September. The tree bears immensely, and attains a great size. The fruit is inferior when grown in the south.

BEQUÊNE MUSQUÉ.—Fruit large obovate, and irregular in its outline. Skin pale yellow in the shade, and slightly tinged with dull red next the sun, thickly covered with large patches of grey russet. Eye small and open. Stalk an inch long. Flesh white, gritty, crisp, sweet, and musky.

A stewing pear, in use during November, but it is not one of the best for culinary purposes.

Bergamot. See *Autumn Bergamot*.

Bergamotte d'Alençon. See *Bergamotte d'Hollande*.

Bergamotte d'Austrasie. See *Jaminiette*.

Bergamotte de Bugi. See *Easter Bergamot*.

BERGAMOTTE CADETTE (*De Cadet; Beauchamps; Beurré Beauchamps*).—Fruit medium sized, obovate. Skin greenish-yellow in the shade, and dull brownish-red next the sun, and marked with patches and large dots of pale brown russet. Eye open, set in a wide and rather deep basin. Stalk three quarters of an inch long, inserted in a small cavity. Flesh white, tender, melting, and very juicy, with a rich sugary and musky flavour.

An excellent dessert pear, in use from October to December.

Bergamotte Crasanne. See *Crasanne*.

BERGAMOTTE DUSSART.—Fruit rather above medium size, turbinate. Skin lemon-yellow when ripe, strewed with greenish and grey dots over the surface, and a few traces of russet. Eye frequently wanting. Stalk half an inch long. Flesh half-melting, very juicy, sweet, and vinous. December and January.

BERGAMOTTE ESPEREN.—Fruit medium sized, turbinate, and uneven in its outline. Skin rough from being entirely covered with dark brown russet. Eye very small, with incurved acute segments. Stalk an inch long, woody, and obliquely inserted. Flesh tender, juicy and melting, sweet and richly flavoured.

This is one of our best late pears, ripening from the end of January up till March and April. The tree forms a handsome pyramid, and is an excellent bearer; but in late situations requires a wall.

Bergamotte d'Été Grosse. See *Belle de Bruxelles*.

Bergamotte Fiève. See *Fondante d'Automne*.

Bergamotte Fortunée. See *Fortunée*.

Bergamotte de Fougère. See *Bergamotte d'Hollande*.

Bergamotte d'Hiver. See *Easter Beurré*.

BERGAMOTTE D'HOLLANDE (*Amoselle; Bergamotte d'Alençon; Bergamotte de Fougère; Beurré d'Alençon; Lord Cheney's; Holland Bergamot; Winter Green*).—Fruit large, roundish. Skin greenish-yellow, covered with brown russet. Stalk an inch and a half long, slender, curved, set in a shallow, one-sided cavity. Eye small, in a wide, deep basin. Flesh white, crisp, very juicy and sprightly. April till June. Requires a wall.

Bergamotte de Pâques. See *Easter Bergamotte*.

Bergamotte de Paysans. See *Belle de Bruxelles*.

Bergamotte de la Pentecôte. See *Easter Beurré*.

BERGAMOTTE DE STRYKER.—Fruit small, roundish, of an even and regular shape. Skin smooth, and somewhat shining, of a greenish-yellow colour, and marked with russet dots. Eye very large and open, set even with the surface. Stalk three quarters of an inch long, quite green, and inserted without depression. Flesh white, half-melting, and very juicy, sweet, and pleasantly flavoured. Ripe in the end of October.

Bergamotte Tardive. See *Easter Beurré*.

Bergamotte Tardive. See *Colmar*.

Bergamotte de Toulouse. See *Easter Beurré*.

Besidery. See *Bezi d'Heri*.

Beurré d'Albret. See *Fondante d'Automne*.

Beurré d'Alençon. See *Bergamotte d'Hollande*.

BEURRÉ D'AMANLIS (*d'Amanlis; d'Albert; Delbert; Hubard; Kaissoise; Thessoise; Plumgastelle; Wilhelmine*).—Fruit large, obovate. Skin yellowish-green on the shaded side, but washed with brownish-red on the side next the sun, and considerably covered with dots and patches of russet. Eye open, set almost even with the surface. Stalk an inch long, obliquely inserted in a shallow knobbed cavity. Flesh white, melting, very buttery and juicy, with a rich sugary and slightly perfumed flavour.

One of our best autumn pears, ripe in September. The tree is hardy, with a straggling habit of growth, and is an abundant bearer.

BEURRÉ D'AMANLIS PANACHÉ.—This is a variety of the preceding, and differs from it merely in having variegated leaves and fruit striped with yellow or orange bays. It ripens at the same time, and is of the same merit.

Beurré Amboise. See *Brown Beurré*.

Beurré Anglaise. See *Easter Beurré*.

BEURRÉ D'ANJOU (*Ne Plus Meuris* of the French).—Fruit large, obtuse-pyriform. Skin greenish-yellow, with sometimes a shade of dull red next the sun, marked with patches of russet, and thickly strewed with brown and crimson dots. Eye small and deeply inserted. Stalk short and stout. Flesh white, rather coarse-grained, but melting and juicy, with a brisk and perfumed flavour. Ripe in December and January.

This is quite distinct from the *Ne Plus Meuris* of Van Mons. It is not unlike *Beurré d'Aremberg* in appearance.

Beurré d'Apremont. See *Beurré Bose*.

BEURRÉ D'AREMBERG (*Beurré Deschamps; Beurré des Orphelines; Colmar Deschamps; Delices des Orphelines; Deschamps; Due d'Aremberg; L'Orpheline; Orpheline d'Enghein; Soldat Laboureur*).—Fruit medium sized, obovate. Skin yellowish-green when ripe, and considerably covered with patches, veins, and dots of cinnamon-coloured russet. Eye small, with short segments, which frequently fall off, and set in a deep hollow. Stalk from half an inch to an inch long, obliquely inserted on the surface of the fruit. Flesh white, melting, buttery, and very juicy, with a rich vinous and perfumed flavour.

A first-rate dessert pear, ripe in December and January. The tree forms a handsome pyramid, and is a good bearer, but is apt to caulk in cold soils.

Beurré d'Argenson. See *Passe Colmar*.

Beurré Aurore. See *Beurré de Capiaumont*.

Beurré d'Avranches. See *Louise Bonne of Jersey*.

(To be continued.)

QUERIES AND ANSWERS.

BLOOM UPON FRUIT.

"Will you inform me what the hue, or bloom, on fruit, such as the Plum, &c., is called scientifically, and why the hardest rain never moves what comes off if you do but just touch it ever so lightly with the finger?"—IGNORAMUS.

[The best information we can give you is contained in the following extract from Keith's "Botanical Lexicon:"—"Upon

the epidermis of the leaves and fruit of certain species of plants there is to be found a fine, soft, and glaucous powder. It is particularly observable upon Cabbage leaves and upon Plums, to which it communicates a peculiar shade. It is known to gardeners by the name of *bloom*. It is easily rubbed off by the fingers, and, when viewed under the microscope, seems to be composed of small, opaque, and unpolished granules, somewhat similar to the powder of starch; but with a high magnifying power, in a good light, it appears transparent. When rubbed off, it is again reproduced, though slowly. It resists the action of dews and rains, and is consequently insoluble in water. But it is soluble in spirits of wine; from which circumstance it has been suspected, with some probability, to be a resin. (*Mirbel, Phys. Veg. i., 112.*) Proust says it is wax. (*Ure's Chem. Dict.*) Whether it is a resinous or waxy exudation, in either case it would be insoluble by water; and, like the down upon the wings of the butterfly, would throw off the gentle drops of rain, though it would adhere to the finger, however gentle its touch.]

CULTURE OF THE PRIMULAS.

"Your correspondent 'Q. Z.' (pp. 246—7), will, I hope, give us some hints as to the management of Primulas—at least of the more delicate sorts, which I find touchy things. *P. Monroii* should certainly, as he says, be grown in a pot placed in a saucer of water, and so should a few others. I find *P. Sikimensis* requires this treatment; and I have had it with stems eighteen inches high. *P. Palinuri* is not common, and is difficult to grow. I may also recommend him *P. involuerata*, which requires the same treatment as *P. Monroii*. I had *P. Stewardii*, but have lost it. It is said to be fine, but I never bloomed it."—A. R.

[In answer to the inquiries which "A. R." makes about my treatment of Primula, I beg to say that I also find several of the species rather touchy things. I conclude that "A. R." does not want any information respecting the management of the Primrose, the Cowslip, the Oxlip, and their varieties.

I will first observe that I cultivate all the other species in pots well drained. The drainage is, I think, an important part in the cultivation of all the species of Primula, except those which thrive best when placed in a saucer of water; for example, *P. Monroii*. All the species like a shady, but an open situation, and a free air. I place my pots in flower-stands on the outside of windows, the aspect of which is north-west. I should much prefer a north-east aspect, but I have no windows that front the north-east.

I cultivate *P. Auricula*, *P. marginata*, *P. nivalis*, *P. Helvetica*, *P. villosa*, *P. viscosa*, *P. glutinosa*, *P. dentata*, *P. minima*, in precisely the same way. The soil in which I grow them is a mixture of equal quantities of surface soil rather light, and mould from a woodstack, containing small pieces of half-decayed sticks; to which I add some broken charcoal. I shift and part the plants about the middle of July. In winter I protect them in the night, and in the day also, with mats or pieces of carpeting.

I part and repot *P. longifolia*, *P. denticulata*, and *P. farinosa*, every year in October, cutting off the old roots, and leaving only those which belong to the buds which contain the leaves and flowers of the next year. I think that *P. longifolia* and *P. denticulata* are liable to suffer from severe frost, I therefore keep them during the winter in a room close to the window. *P. farinosa* I grow in peat and loam, keeping it in a cold frame during winter. I also keep *P. integrifolia* in a frame, and part it, if necessary, in the autumn. *P. cortusoides* I grow in the same soil in which I grow *P. Auricula*, &c. Finding that the roots of this plant struck into the moss which I had put over the drainage, I last autumn—when I parted the plants, the leaves being dead—lined the pots with moss, and I find that the plants are doing well. I believe that most of the species of Primula, except those which require to be grown in pots placed in saucers of water, suffer from being watered too profusely, or perhaps I should rather say too frequently. *P. longifolia* and *P. denticulata* require more water when growing than the greater part of the species.—Q. Z.]

TO MAKE SWEET POTATOES OF IRISH POTATOES.—Steam them well and wring them in a towel to make them mealy; mash till there are no lumps left, and sweeten with common brown sugar, to the taste. They are now ready to be baked, fried, or made into puddings.—(*Oregon Farmer.*)

DOMESTICATED MARTEN CAT.

NO. II.

HAVING in a former number of THE COTTAGE GARDENER detailed somewhat explicitly the particulars of the thorough domestication of a Marten Cat, I feel confident that some of your readers will feel interest in the account of the "sport" which arose from the singular activity of this beautiful little pet, combined with the docility it generally evinced when thus engaged.

It will be recollected, that, although perfectly tractable and familiar on ordinary occasions, its evident antipathy to both rats and squirrels caused it to be rather unruly, even to biting, in their presence, if undue restraint on its natural propensities were then enforced. The first occasion on which I noticed this destructive inclination was from a rat, caught in a steel trap, being instantly killed, and voluntarily, too; for this unfortunate captive was brought in a trap on to the premises by a neighbouring playmate to try whether a small Blenheim spaniel I then possessed would kill it. The spaniel regarded the rat with astonishment, and evidently considered to walk away showed more discretion, if not valour, than to wage battle with such an adversary; the rat, however, seemed ill at ease, and squealed at intervals. "Lightfoot," as we had named the Marten Cat, was, at this early period of her domestication, generally confined in a large cage with a wire front; and a servant said, "Look at Lightfoot! she'll have the front of her cage through." True enough it was: she was struggling hard to pull out the wires with her teeth—an attempt she had never previously indulged in. The suggestion, "Oh, try Lightfoot," was at once adopted, and the death of the rat followed instantaneously. She seized it while still in the trap with her teeth at the back of the ear, placing her fore feet on it at the same moment, and afterwards never quitting her hold till the rat was quite dead; she then regaled herself with its blood, and brained it completely—a practice that was never afterwards forgotten. This unlooked-for first effort (for it was certain this Marten Cat could never have seen a rat previously) determined us on again trying her prowess against a rat unshackled by either trap or broken bone; and a giant specimen was expressly obtained for this purpose, and turned loose in an almost vacant room. Lightfoot was then brought in; and the rat, with apparent foreknowledge that personal danger was afloat, retreated to a corner, where a piece of heavy furniture partially shielded him from attack. Each of the combatants now seemed to be fully aware of the vast importance of first impressions. Lightfoot menaced by loud murmurings, but seemed determined not to venture whilst she found her opponent was evidently waiting the expected onslaught, with head never turned askance for a single moment. Some one now touched the rat, and it moved triflingly, and was as instantly seized and killed momentarily. It was on this occasion, however, that my pet received a wound so severe, that it showed a complete scar until her death some two years afterwards, being bitten completely through the left jaw. It is remarkable that this is the only instance in which, in any of her encounters, she was herself ever injured; and likewise the only occasion on which I was ever bitten by her, which I always attributed to the pain she was then suffering from the hurt just received. Besides which, not being at that time so accustomed to her temper when excited, I might possibly have handled her somewhat too hurriedly; nor was she nearly so tame at this time as she became even within a few months afterwards. Whether or not her domestication influenced her natural appetites I cannot say; but it is certain that, from some inexplicable cause, she would not attempt to injure a rabbit, although even tested with young wild ones, which ran rapidly from her. These she would follow with alacrity for a few minutes, and even strike with her feet; but no inducements would make her so to injure as to destroy them, and she would then withdraw from a pursuit in which she appeared to take no interest. This seems by far more extraordinary from what I am now about to mention.

About this time she became equally familiar with all around her; and evidently was pleased with caresses when quietly offered, even from a stranger. Her aptitude for rat-killing had ceased to excite attention; when one day a squirrel, that had escaped by accident from some one in the neighbourhood, was suddenly espied in a somewhat lengthy row of Poplar trees. Lightfoot had been taken into some fields more privately situated for her accustomed run, and was then in a basket on a young friend's arm, together with the cat—that being a necessary

lure to entice her back again when a return home was contemplated.

Acting on the impulse of the moment, the Marten Cat was let free, and a chase of the most exciting nature was quickly the result. The squirrel, evidently avoiding all approaches to intimacy; whilst my pet was equally determined to secure the much-coveted prize. I will not here dwell on particulars. Suffice it to say, after about ten minutes' incessant pursuit the squirrel was captured and at once killed, and my even-now-still-more-highly-valued favourite as comfortably housed again in her basket-carriage. In the case just named a somewhat thick hedgerow, together with the trees being yet in leaf, was a great obstacle to close observation: still this circumstance awakened in our minds the possibility of obtaining sport at no distant period; possessing those essential concomitants of delight in such matters—viz., something unique, uncertainty of success, combined with a variable and excitable chase. After a selection of a group of trees, well grown, and evidently planted by some long bygone owner, for shade or effect, in the very centre of a field of some ten or twelve acres, consisting of an Oak, a Silver Birch, a Larch Fir, and a Poplar—how anxiously was the time waited for when the deciduous portion of these trees would offer no hindrance to seeing a like chase throughout. Youth is always energetic, and generally more prompt than wise. Long before all the leaves had dropped we were hastening to this spot with a captive squirrel (only caught the day previously), bagged with all formality, and Lightfoot quite awake to the coming amusement; our destination the group of trees just referred to, and our hearts beating gladly with the knowledge. The fear of castigation by an unapproving preceptor was among the events only of days passed by.

Arrived at our post, then, the squirrel was enlarged, and, with the rapidity of a bird, ascended the Silver Birch, but, almost instantly jumping into the Larch, disappeared altogether.

The Marten Cat was now permitted its liberty also, but with feelings admittedly somewhat closely allied to fear it might prove missing also. For no really assignable reason the latter would not ascend the Silver Birch, although within only some five minutes or so the squirrel had as recently passed that way. It took to the Oak tree, however, without demur, and with at least an equal amount of alacrity to our now-lost quarry. Scent seemed (at all times) to have but little influence on its actions—in this case, of course, none whatever, and it now actually came down again to the cat; the half-crown investment in the purchase of the squirrel being noisily voted a "bubble scheme." It was not so, however; for in far less time than imagination suggests the chase was on in good earnest. The squirrel had scaled the utmost branches of the Poplar in some way unperceived, and finding itself closely viewed, jumped outright from Lightfoot on to the Oak, passed as a shadow down the opposite side of the trunk, ran at a few bounds to the foot of the Larch, and in an instant was a second time out sighted among some of its still dense foliage. But its pursuer was not to be thus foiled. Gliding, however (still, as not by scent), along the midway-intersecting branches of the various trees, seeming to proceed cautiously, as though looking out for a movement. On these occasions it would raise itself to the full length of its forelegs, extending the neck to the utmost, standing perfectly quiescent, saving the tail moved to and fro excitably. If the object so carefully sought for proved distant, caution was the order of the day, and my pet then crouched and passed along the branches so closely, as to be but occasionally visible from below; if, on the contrary, there were the possibility of capture, then quickly repeated rushes either at once effected its end, or at least afforded great pleasure to all save the pursued. Even the slightest movement produced a corresponding one in the aggressor; there would then ensue a flight (for I know not what more descriptive language to make use of) for many minutes without the slightest intermission; the squirrel not infrequently suddenly dropping from the very summit to the lowest boughs of the larger trees, and displaying a prehensile tenacity of grasp of the weakest sprays, which the Marten's conformation and weight prohibited. On some occasions the Marten Cat would actually run rapidly on the underside of the branches, evidently in hope to surprise; from this cause, sometimes, they were positively within a foot or so of each other, and in an instant twenty or thirty yards would intervene. At times Lightfoot gave somewhat questionable proofs of the happy selection of its name, for it would make sudden passes with its fore feet, striking the fur from the pursued, and in one instance even entirely stripped the squirrel's tail of every particle of hair; yet this

hold proved not effective. Frequently the footing of both gave way, but never that I can recollect so far as to bring them to the ground: they simply became divided in their struggles, gained lower boughs, and the pursuit recommenced.

At intervals both would pass round and round the same branch; if a thick one, in different directions; sometimes all but meeting face to face, yet just in time to avoid a most fatal interview, to one party at least; whilst, by way of reconnoitre, a perfectly quiet bo-peep over, under, and along the branches, would take place simultaneously. One quite unexpected feature in these sports was the inordinate curiosity manifested by the squirrel if Lightfoot adopted a feint, not uncommon with her—viz., to stop at full chase very suddenly, on some thick arm, and there, with its fore feet placed against the trunk of the tree, wait in a nearly upright posture—the effect of overweening credulity in the squirrel. This singular practice caused the capture of several, the little animal absolutely returning to ascertain what was gone with its foe. Many of the evolutions were so extraordinarily rapid, the eye could scarcely follow them; whilst others, indeed the generality, were of the most graceful character conceivable. Poor Lightfoot's death was, doubtless, partly attributable to this fondness for squirrel hunting, as the youth who killed her stated, "If she had not been popping about in the trees, close to the house, like a wild thing, he should not have shot at her."—CHANTICLEER.

VARIETIES.

THE OILS OF CEYLON.—Those most common in Ceylon are the cocoa-nut and gingerly oils. The former is one of the grand staple commodities of the island; the latter is the produce of a small grain, grown exclusively by the natives. But, in addition to these, there are various other oils manufactured by the Cingalese. These are the Cinnamon oil, castor oil, margosso oil, Mee oil, kenar oil, meecheeria oil; and both Clove and Lemon-grass oil are prepared by Europeans. The first, which is the Cinnamon oil, is more properly a kind of vegetable wax, being of the consistence of stearine. This is prepared from the berries of the Cinnamon shrub, which are boiled in water until the fatty substance, or so-called oil, floats upon the surface; this is then skimmed off, and, when a sufficient quantity is collected, it is boiled down until all watery particles are evaporated, and the melted fat is turned out in a shallow vessel to cool. It has a pleasant, though, perhaps, a rather faint aromatic smell, and is very delicious as an adjunct in the culinary art. In addition to this it possesses gentle aperient properties, which render it particularly wholesome. Castor oil is also obtained by the natives by boiling, and is accordingly excessively rank after long keeping. The castor-oil plant is a perfect weed throughout Ceylon, being one of the few useful shrubs that will flourish in such poor soil without cultivation. Margosso oil is extracted from the fruit of a tree of that name. It has an extremely fetid and disagreeable smell, which will effectually prevent the contact of flies or any other insect. On this account it is a valuable preventive to the attacks of flies upon open wounds; in addition to which it possesses powerful healing properties. Mee oil is obtained from the fruit of the Mee tree. This fruit is about the size of an Apricot, and is extremely rich in its produce; but the oil is of a coarse description, and is simply used by the natives for their rude lamps. Kenar oil and meecheeria oil are equally coarse, and are quite unfit for any but native purposes. Lemon-grass oil, which is known in commerce as citronella oil, is a delightful extract from the rank Lemon-grass which covers most of the hill sides in the more open districts of Ceylon. An infusion of the grass is subsequently distilled; the oil is then discovered on the surface. This is remarkably pure, with a most pungent aroma. If rubbed upon the skin, it will prevent the attacks of insects while its perfume remains; but the oil is so volatile, that the scent quickly evaporates and the spell is broken. Clove oil is extracted from the leaves of the Cinnamon tree, and not from Cloves, as its name would imply. The process is very similar to that employed in the manufacture of citronella oil. Cinnamon is indigenous throughout the jungles of Ceylon. Even at the high elevation of Newera Ellia it is one of the most common woods, and it grows to the dimensions of a forest tree, the trunk being usually about three feet in circumference. At Newera Ellia it loses much of its fine flavour, although it is still highly aromatic. This tree flourishes in a white quartz sandy soil; and in its cultivated state it is never allowed to exceed the dimensions of a bush, being pruned down close to the ground every year. This

system of close-cutting induces the growth of a large number of shoots, in the same manner that withies are produced in England. Every twelve months these shoots attain the length of six or seven feet, and the thickness of a man's finger. In the interim, the only cultivation required is repeated cleaning. The whole plantation is cut down at the proper period, and the sticks are then stripped of their bark by the peelers. These men are called "Chalias," and their labour is confined to this particular branch. The season being over, they pass the remaining portion of the year in idleness, their earnings during one crop being sufficient to supply their trifling wants until the ensuing harvest. Their practice in this employment naturally renders them particularly expert; and in far less time than is occupied in the description they run a sharp knife longitudinally along a stick, and at once divest it of the bark. On the following day the strips of bark are scraped, so as entirely to remove the outer cuticle. One strip is then laid within the other, which, upon becoming dry, contract and form a series of enclosed pipes. It is subsequently packed in bales, and carefully sewed up in double sacks for exportation. The essential oil of Cinnamon is usually made from the refuse of the crop; but the quantity produced in proportion to the weight of Cinnamon is exceedingly small, being about five ounces of oil to half a hundredweight of the spice. Although the Cinnamon appears to require no more than a common quartz sand for its production, it is always cultivated with the greatest success where the subsoil is light, dry, and of a loamy quality.—(*Baker's Ceylon.*)

SEA-ANEMONES.—Sea-Anemones are extremely voracious, and almost every observer has his own anecdotes to illustrate it. Dr. Johnston relates one which at the same time remarkably illustrates their power of reproducing organs of their own body. "I had once brought to me a specimen of *Actinia crassicornis*, that might have been originally two inches in diameter, and that had somehow contrived to swallow a valve of *Pecten maximus* of the size of an ordinary saucer. The shell, fixed within the stomach, was so placed as to divide it completely into two halves, so that the body, stretched tensely over, had become thin and flattened like a pancake. All communication between the inferior portion of the stomach and the mouth was of course prevented; yet, instead of emaciating and dying of an atrophy, the animal had availed itself of what undoubtedly had been a very untoward accident, to increase its enjoyments and its chances of double fare. A new mouth, furnished with two rows of numerous tentacula, was opened up on what had been the base, and led to the under-stomach: the individual had indeed become a sort of Siamese twin, but with greater intimacy and extent in its unions." (*British Zoophytes*, i. 235.) As inmates of the aquarium, Sea-Anemones are apt to prey upon their fellow-prisoners. "Simple contact of the tentacula," says Sir J. G. Dalyell, "is the prelude of destruction. Some animals, as if conscious of their inevitable fate, seem paralysed by the touch, and yield without a struggle. Others, whose size and strength should insure indemnity, are held in the relentless grasp; the tentacula crowding faster and faster around, until the victim is speedily swallowed alive." There appears to be in other marine animals an instinctive horror of the tentacula of the Sea-Anemone. The hermit-crab will instantaneously flee out of its shell, if the shell is caught by them. It is now believed that, like the *Acalephæ* and the *Hydras* the Sea-Anemones possess a power of benumbing their prey. Sea-worms (*Nereides*) have been observed first to writhe, and then to become paralysed. Little elliptical capsules are in some species scattered over the whole surface of the body; in others, confined to the tentacula, or even to their tips. These are furnished with spicula or minute spears, by which it is probable that not only are wounds inflicted, but poison is also conveyed into them. The sensations produced by the touch of the tentacula appear to be very different in the case of different persons, from a mere "rasping feeling" on the withdrawal of the hand, to a slight tingling, and even to a stinging as by a Nettle. The *Anthea Cereus* possesses the stinging power in a much greater degree than the ordinary *Actinie*. Probably the skin of the human hand is in general too thick or hard to be pierced by their fine spicula. Dr. A. Waller, of Birmingham, has recently found, that, on submitting the tip of his tongue to the tentacula, a pungent pain and stinging, as by a Nettle, were the constant result. He has also found that a thin India-rubber membrane grasped by the tentacula retains the microscopic "poison-darts" sticking on its surface. Some of these are only two or three times the length of the capsule which contains them, or at most one-hundredth part of an inch; but others are much longer, and

when within the capsule are coiled up after the manner of a watch-spring. The capsules are, therefore, called *filiferous* or *thread capsules*. This thread is highly elastic, and the expulsion of it, as of the shorter spicula, is effected, Mr. Gosse tell us, by organs having this for their special office.—(*Chambers's Encyclopædia.*)

TO CORRESPONDENTS.

GOLD AND SILVER FISH.—*W. Goddall* will be obliged by being informed if these fish may safely be left through the winter in a basin in the open air; and if the said basin, lined with cement, will require any and what protection from frost.

VERY SMALL FARM (A Schoolmaster).—Buy our "Allotment Farming for the Many;" for the threepence you will have much of the information you need. Mr. John Sillett's pamphlet is called "A New Practical System of Fork and Spade Husbandry." We gave some extracts from it in our 106th number. You may obtain it through your bookseller; and so you may "Our Farm of Four Acres," a second edition of which is just published.

CAUSING VARIATION IN LEAVES (An Old Amateur).—There is not a gardener who can or could turn one single leaf from green to variegated. Chemists might turn a leaf from plain to variegated, but that kind of variegation could never go back to green again; but the new leaves would be green. Our correspondent bought a variegated Fuchsia, and as soon as she had it home it turned green. The trick seemed evident. We are just in the same fix. We had two cuttings last October of a variegated Fuchsia; we had two plants from them, one variegated, and one quite green. But we have not the right key to the greening of this variegated Fuchsia. We only regret the fact that it turns green of itself; not the same leaves, however,—the new growth only is green.

DOUBLE CONVULVULUS (An Amateur).—There is such a plant as a double *Convulvulus*. We have scores of yards of wreaths of it just now in full bloom and beauty. Also the single of the same kind. *Calystegia pubescens* is the name of it, and if once you plant it, you will never get rid of it; therefore, plant it near evergreens, or some strong shrubs, and it will soon run up, and cover them with hanging wreaths of perfectly double and very beautiful flowers. There is just now a large *Aucuba Japonica* in the garden of the Wanstead Infant Orphan Asylum, literally in one mass of bloom of the single *Calystegia pubescens*—the prettiest thing we have seen this season in all our rambles.

ROSES FOR A NORTH AND NORTH-EAST WALL (M. A. M.).—A good deal depends on what part of the kingdom you reside in; and we do not happen to know that. The best we can do is to say that, of all plants, Roses are the very worst to cover the front of a house anywhere: and the reason is, the perpetual war going on to keep down the green fly, caterpillar, and mildew. The nasty things that must be used so near one's windows and doors are enough to breed typhus fever. We never recommend Roses for the front of a house. However, we will make a guess at the situation, and say any of the evergreen climbing Roses, as the best for all places in the kingdom, and bud perpetual sorts on them afterwards. The *La Marque* is also a fine wall Rose. *Jaun Desprey* is as good as a tea-caddy in warm places; and *Blairii* No. 2 is the strongest summer Rose, but bad to bud others on; and the strong common *Noisettes* are the best for autumn bloom, where the climate suits them.

SCOLYTUS DESTRUCTOR (A Constant Reader).—The holes in the bit of Elm bark sent are rather larger than the ordinary ones made by *Scolytus destructor*, although very similar to them. Your account, however, of the state of the trees quite agrees with that caused by the presence of the Scolytus, of which an excellent figure is to be found in "Curtis's British Entomology."—W.

SELECTION OF VERBENAS (H. T.).—To have any practical value, the answer to the above would need that all men should agree in one taste, and all women to agree with the men. When that happens, flower gardening will necessarily cease as an object of enjoyment, for every one of them would be the same thing. Every flower gardener you meet has certain best flowers, and no two men have exactly the same taste. It is on the same principle that we decline planting beds for people. Let that once be done by the most varied intellect, and it must soon come to repeat itself, and one style would pervade the whole kingdom. Take it in any point of view, and it will end in sameness. There are, say twelve best scarlet Verbenas, and twelve of all the other colours in that family; then take the first twelve ladies you meet, and let each take "the best" Verbenas of each colour, and eleven of them are gone at the first, and each lady has the best for her, and one goes without, because none of them will suit her. Then how is one man, or fifty men, to choose the best for hundreds and thousands?

VARIOUS (J. P. M.).—*Marchantia* will not injure the small Ferns among which it grows. Sink the troughs in the earth, and this will sufficiently preserve the roots of *Nymphæa alba* growing in them. All crossed flowers are liable to occasional sports on whatever soil they may be grown.

WEeping ASH (Ignoramus).—Your plant is *Escallonia rubra*. By careful management you may move your Weeping Ash in the autumn, about the middle of November, if the weather is favourable. Dig a trench round the tree, six feet from the stem, and gradually remove the soil with forks from about the roots, and preserve them as much as possible. If this be done carefully, the tree will not suffer.

MEALY BUG (A Subscriber since October).—Remove your Oleander to a room where no other plants are, and wash it thoroughly with a solution of the Gishurst Compound, two ounces to the gallon. Follow the directions sent with the Compound.

MOWING MACHINES (E. H.—A Young Gardener).—Any of those advertised in our columns will answer for your grass. Keep the machine in good order.

GRAPE (John Morgan).—The specimen you enclose is very curious; one growing inside the other. Had you observed the flowers that produced the fruit, you would have found there was one flower issuing from the

ovary of another. This is occasioned by an extension of the axis of the plant beyond the usual point. You will not find the character permanent.

BINDING GRAVEL (J. Marshall).—Our correspondent would be obliged by any one stating where, near Liverpool, he can obtain "the best-coloured binding gravel fit for the top of garden walks." He requires enough for half a mile of walks.

CHEMICAL LECTURES (P. W. F.).—You cannot attend a better course than that you mention. We presume you have read some elementary work on the science.

SEEDLING CALCEOLARIAS (H. Major).—The specimen flowers you have sent are among the most richly coloured and most beautifully marked that we have ever seen. They are also good formed flowers.

NAME OF PLANT (A Cottage Gardener).—Your plant belongs to the Mallowworts (Malvaceæ), and is one of the greenhouse or half-hardy evergreen shrubby kinds, in the way of *Lavatera unguiculata* (the clawed). This we believe it to be from the solitary flower sent, and you can make as many plants from cuttings as you please. The sooner they are put in the better. Strong plants turned out into the open border, or as single specimens upon the lawn, are very ornamental at this time of the year.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

AUGUST 10th. ORMSKIRK and SOUTHPORT. *Sec.*, Mr. James Spencer, Ormskirk. Entries close the 22nd of July.

AUGUST 19th and 20th. BRADFORD. *Secs.*, Mr. A. Hardy, Bowling Old Lane, Bradford, and Mr. E. Blackbrough, Black Bull Inn, Ive Gate, Bradford. Entries close August 12th.

AUGUST 23rd and 24th. WHITBY. *Sec.*, S. Burn, Esq., 1, East Terrace, Whitby. Entries close August 13th.

AUGUST 25th, 26th, and 27th. MACELESFIELD. *Sec.*, Mr. W. Roe. Entries close August 10th.

AUGUST 27th. HALIFAX. *Sec.*, William Irvine, Holmfild, Ovenden, near Halifax.

AUGUST 29th, 30th, 31st, and SEPTEMBER 1st. CRYSTAL PALACE. Poultry, Pigeons, and Rabbits. *Sec.*, William Houghton. Entries close Saturday, July 30th.

SEPTEMBER 22nd. BRIDGNORTH. *Sec.*, Richard Taylor, Bridgnorth.

OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. *Sec.*, Geo. Griffiths, 7, St. Swithin Street, Worcester.

NOVEMBER 28th, 29th, and 30th, and DECEMBER 1st. BIRMINGHAM. *Sec.*, Mr. J. Morgan, Bingley Hall, Birmingham.

N.B.—Secretaries will oblige us by sending early copies of their lists.

RECRUITING THE POULTRY-YARD.

It is as true of poultry-yards as it is of everything else, that certain duties belong to certain seasons. The fowls have now fulfilled their parts as breeders, and are, most of them, beginning to moult. There will be no return for food consumed from ordinary birds till next spring. Walks may be broken up, and all may run together promiscuously for a time.

Some weeks ago we advocated a razzia among the chickens, and a merciless slaughter of all that did not promise to make the outlay on their food a good investment. We are now just as cruelly disposed towards the adults. In every yard there are some venerable old hens that have long been useless; but they have been used as sitters. They do not make very good mothers; but there is a kindly recollection of past services. Readers, such hens are useless. We advise you to kill them, or to sell them, or to get rid of them in any way you like; but do not keep them. There is no probability of their doing you any good; their moulting is more difficult every year; they do not enjoy life, and it is a charity to put them out of their misery. Be hard-hearted: do not listen to nice little girls, who want this hen saved because she is so tame, or that because you have had her so long; but if you wish your poultry-yard to pay its expenses, do not keep these useless months. They will not lay an egg for more than six months. Admit they cost you three-halfpence per week for keep. Three shillings and sixpence before they earn a farthing—and you must recollect their idle season is that when their cost is greatest; when they have no food but what is given to them; and when, from the weather, they want more nourishment. Well, then, three shillings and sixpence added to eighteenpence, which the old lady will make to a higgler, or at the nearest market, make five shillings; and if ten of these worn-out fowls are kept, there is a clear loss of fifty shillings.

For the utility of a poultry-yard, there should every year be a relay of pullets fit to begin laying in the winter,—say in November. These should not be in excess of the usual number, but in lieu of old birds. By this latter term we do not mean two-year-old hens, but those that have seen four or five summers. Granting such may not be entirely useless, they cannot be as profitable as younger birds. You will now be able to select the choicest from among the chickens. Give these every advantage. Feed on ground food; and if any birds do not moult well, give them castor oil—a table-spoonfull every third day. If they show dry and naked spots, rub them with compound sulphur

ointment. Do not let your young promising cocks be beaten and driven by the old birds; rather remove the latter, or confine them in a roomy, healthy pen. *No beaten cock ever grows into a first-prize bird.*

Bestow your best run and best attention on your chickens, but do not let the old birds be neglected, or get out of condition. Nothing is so costly, tiresome, and short-sighted, as that management which knowingly allows birds to get thoroughly out of condition, with the intention of getting them up again when necessary. Recollect the moult of a fowl is an effort and a drain on the constitution. The loss, then, must be constantly supplied.

EXHIBITION OF POULTRY AT DRIFFIELD, YORKSHIRE.

As many of our readers are probably aware, this Show of domestic poultry forms part of the exhibition of the Agricultural Society of this district. It has now been established six years; and, as public journalists, it gives us great pleasure to announce, that annually improvement has been manifested, and that even more particularly as regards the Show just concluded. The popularity of this portion of an agricultural meeting was never more apparent than at Driffeld; the poultry proving itself the most attractive as to the bulk of visitors of any department in the Show-field, and the attendance of lady visitors with their families was, perhaps, more extended than we can call to recollection at any similar local meeting. This result is in strict accordance with our past experience in these matters; and our opinions are emphatically endorsed by the results at the Royal Agricultural Society's Show, held so recently at Warwick. Reporting on this latter Exhibition, the *Birmingham Daily Post*, a newspaper undoubtedly enjoying one of the largest circulations in the midland counties, "regrets the paucity of attendance of the fair sex at Warwick," and justly attributes the falling off to the want of personal interest of females generally, in horses, cattle, and agricultural implements alone. Except in rural districts, this will ever be the result, and a comparatively reduced attendance must ensue. The Warwick Meeting affords a practical proof of this fact, whilst the Driffeld Show as fully illustrates the other side of the question. It is well, therefore, for agricultural societies to reflect ere they expunge one of the most attractive items from their prize lists. The Warwick returns proved a considerable deficiency in the amount of admission-movies; whilst, on the contrary, it was publicly stated at the dinner by Lord Hotham, that the amounts received at the gates at Driffeld were never before so good. Let it not be supposed, however, these results were attributable to the weather; for the Warwick Meeting took place during weather the most auspicious, whilst the morning of the Driffeld Show was ushered in by heavy rains, that were facetiously stated to be "fair weather for turnips only." Most luckily, however, towards 10 or 11 A.M., the clouds cleared away; and the thousands attracted by the Show to Driffeld enjoyed to their hearts' content the treat prepared for their inspection.

We will now make a few brief remarks on the poultry generally. The entries were far more extensive than heretofore, and the quality of the birds exhibited was singularly in advance of those of last year. From the fact of this being the moulting season for old poultry, of course their condition as to feather was somewhat impaired; but that of the generality of the chickens was most excellent.

Grey *Dorkings* headed the list, and a goodly number contested, the chickens being especially commendable.

In *Spanish*, Dr. Peirson, of Bridlington-Quay, stood foremost with his usual display of excellent specimens; whilst the chickens of Mr. Samuel Robson, of Pocklington, attracted the undivided attention of the admirers of Spanish fowls. The Doctor also secured the prize for *Single Cocks* of this variety.

In *Game* fowls the competition was excellent, first-rate birds being everywhere general. Here, however, the most convincing proof of the all-important item to success, viz. condition, was most convincing. Mr. Harry Adams, of Beverley, simply by undeviating attention to this ever-necessary feature in exhibition fowls, almost entirely swept away all the prizes in the different Game classes. It was remarkable to see the effect of handling his birds on the awards of the Judges. It was condition, and that alone, that in many instances decided the matter in his favour where the competing fowls to the eye presented but little difference. Exhibitors of Game fowls, more particularly, will do well never to omit this necessary qualification.

Some very superior black *Poland* fowls triumphed in a class open to every variety of colour.

Strange to record, in Yorkshire, none of the *Hamburgh* classes were so good as we anticipated; falling combs were a prevalent failing, and as inevitably told heavily against success. The class for extra varieties was uncommonly good.

The *Bantams*, whether white or black, were excellent; but the Sebrights of either kind were really indifferent.

The *Geese* bespoke favourably for Yorkshire; they were capitally grown specimens.

The *Turkeys*, likewise, were most unexceptionable. Among the Turkey poult the first prize, a pen of three white cockerels, were such as we never remember to have seen so early in the year. They were hatched, we were informed, in February; and certainly bore most favourable witness to the attention of the poultry maid who raised them.

The *Ducks* generally were highly commendable.

Of the *Pigeons* we must speak most favourably, there being scarcely a class that was not well filled: consequently, as will be seen by reference to the prize list, many extra first prizes were allotted by the Judges at the suggestion of the Committee, whose object was evidently to obtain that in which they so happily succeeded—a first-class competition.

The *Rabbits* were superior, and did not fail to obtain much public attention.

Among the extra poultry we noticed an unusually good pen of white Pea fowls, which are always attractive when well shown.

We should not be doing justice to all if we did not here allude to the unceasing efforts of the Committee to win the good opinion of every one. They obtained them, and richly were they deserved. The Judges, Mr. Edward Hewitt, of Sparkbrook, near Birmingham, and Mr. Thomas Chaloner, of Whitwell, near Chesterfield, found "plenty of work cut out for them" in sixty-four classes—a number far greater than customary at such meetings; still this offers an advantage, in giving opportunity to every one who keeps poultry to obtain a premium in one class or other, although, of necessity, entailing much greater labour in the awarding of the Society's prizes. In conclusion, we congratulate the Committee on their present successes, and hope future meetings of this Society may evince equal progression.

DORKINGS.—First, E. W. Easton, Hull. Second, H. W. B. Berwick, Helmsley. Highly Commended, T. Holby Driffield. Commended, M. Hunter, Green Hammerton Hall. *Chickens.*—Prize, H. W. B. Berwick, Helmsley. Highly Commended, M. Hunter, Green Hammerton Hall. Commended, Mrs. Dawson, Poundsworth Mills, Driffield. *Best Cock.*—Prize, R. Smith, Norton. Commended, R. Tate, Driffield.

SPANISH.—First, T. T. Peirson, M.D., Bridlington-Quay. Second, M. Hunter, Green Hammerton Hall. *Chickens.*—Prize, S. Robson, Pocklington. *Best Cock.*—Prize, T. T. Peirson, M.D., Bridlington-Quay.

GAME (Black-breasted and other Reds).—First and Second, H. Adams, Beverley. Highly Commended, M. Hunter, Green Hammerton Hall. *Chickens.*—First, H. Adams, Beverley. Extra second, Captain Wilmot, Neswick. Commended, Messrs. Crawford and Raylod, Hunmanby. *Best Cock.*—Prize, H. Adams, Beverley. Highly Commended, J. Laycup, Driffield. Commended, Messrs. Crawford and Raylod, Hunmanby.

GAME (Duckwing and other Greys).—First and Second, H. Adams, Beverley. Commended, J. Gawan, East Gate, Beverley. *Chickens.*—Prize, Messrs. Crawford and Raylod, Hunmanby. Highly Commended, H. Adams, Beverley. *Best Cock.*—Prize, H. Adams, Beverley. Highly Commended, J. Gawan, East Gate, Beverley.

GAME (any other variety).—First and Second, H. Adams, Beverley. *Game Chickens.*—Prize, H. Adams, Beverley. Highly Commended, R. Tate, Driffield. *Best Game Cock.*—Prize, J. Woodhouse, jun., Bampton.

COCHIN-CHINA.—First, G. S. Simpson, Hunmanby. Second, D. B. Turner, 51, Cogan Street, Hull (Partridge). Commended, R. Tate, Driffield (White). *Chickens.*—Prize, H. W. B. Berwick, Helmsley (Buff). Highly Commended, G. S. Simpson, Hunmanby. *Best Cock.*—Prize, S. Robson, Pocklington.

POLANDS.—First, S. Holloway, 9, Alfred Street, Hesse Road, Hull. Second, R. Thompson, Bridlington (Silver). *Best Cock.*—Prize, S. Holloway, Hull.

POLAND (Golden Pheasant).—First, H. Adams, Beverley. Second, H. W. B. Berwick, Helmsley. Commended, D. B. Turner, Hull. *Chickens.*—Prize, C. Mennel, Norton, Malton. *Best Cock.*—Prize, R. Tate, Driffield.

POLANDS (Silver Pheasant).—First, W. Simpson, Tiekton. Second, S. Robson, Pocklington. *Chickens.*—Prize, J. Taylor, jun., Burton-Agnes. Highly Commended, H. Hodge, 6, High Street, Hull. *Best Cock.*—Prize, W. Simpson, Tiekton.

HAMBURGH (Golden-pencilled).—First, W. Copley, Hunmanby. Second, G. S. Simpson, Hunmanby. Commended, H. Hodge, Hull. *Chickens.*—Prize withheld. *Best Cock.*—Prize, G. S. Simpson, Hunmanby.

HAMBURGH (Silver-pencilled).—First, J. Wilson, Nafferton. Second, Mrs. Jordan, Eastburn House. *Chickens.*—Prize, H. W. B. Berwick, Helmsley. Highly Commended, R. Tate, Driffield. Commended, Mrs. Falkner, Hunmanby. *Best Cock.*—Prize, W. Harland, Bridlington.

ANY BREED NOT PREVIOUSLY CLASSED.—First, R. Smith, Norton (Black Hamburgs). Second, R. Tate, Driffield (Blue Antediluvians). Highly Commended, S. Holloway, Hull (Silky); G. Robson, Hull (Malays);

F. Key, Beverley (White Sultans). *Chickens.*—No entries. *Best Cock.*—Prize, S. Holloway, Hull.

BANTAMS (Gold and Silver-laced).—First, R. J. Wear, 9, Regent Street, Hull. Second, D. B. Turner, Hull (Gold). *Chickens.*—Prize, R. Tate, Driffield (Gold). *Best Cock.*—Prize, R. Tate, Driffield (Gold).

BANTAMS (any other variety).—First, G. Winter, Hull. Second, F. Calvert, Beverley (Black). Highly Commended, Miss A. Dinsdale, Frodingham; M. Hunter, Green Hammerton Hall (Black); R. Tate, Driffield (Black); Mrs. Angas, Bainton. *Chickens.*—Prize, G. Winter, Hull. *Best Cock.*—Prize, F. Calvert, Beverley (Black). Highly Commended, R. Tate, Driffield.

EXTRA.—Prizes withheld.

GEASE.—First, Mrs. T. Mitchell, Low Grange, Market-Weigton. Second, Mrs. J. Vickerman, Thwing. *Goslings.*—Prize, Mrs. J. Vickerman, Thwing. Highly Commended, R. Tate, Driffield.

TURKEYS.—First, Mrs. Dawson, Poundsworth Mill, Driffield. Second, Mrs. Rounding, Kilnwick. *Poults.*—First, R. Holtby, Haywold. Highly Commended, W. Webster, Bampton.

GUINEA FOWL.—Prize, H. Hodge, Hull. Highly Commended, R. Goulden, Bridlington.

EXTRA.—Prize, Miss King, Painslaek, Pocklington (six Guinea Fowls).

DUCKS (Aylesbury).—First, R. Tate, Driffield. Second, S. Burn, Whitby. *Ducklings.*—Prize, M. Hunter, Green Hammerton Hall. Highly Commended, Mrs. Jordan, Eastburn House; G. S. Simpson, Hunmanby; R. Tate, Driffield. Commended, W. Burn, Whitby.

DUCKS (Rouen).—First, Mrs. Jordan, Eastburn House. Second, Mrs. A. Young, Driffield. *Ducklings.*—Prize, Mrs. Jordan, Eastburn House.

DUCKS (any other variety).—First, Captain Wilmot, Neswick (Muscovy). Second, Mrs. Dawson, Poundsworth Mills. Commended, S. Burn, Whitby (Black East Indian); G. W. Harrison, Driffield (Muscovy). *Ducklings.*—Prize, R. Goulden, Bridlington. Commended, H. Merkin, Driffield.

EXTRA.—Prize, J. Ward, Foston (10 Aylesbury Ducks). Prize, Mrs. Dawson, Poundsworth Mills (5 Deeco Ducks). Prize, W. Charters, Driffield (1 Drake).

PIGEONS.—*Croppers.*—Prize, G. Robson, Hull. *Carriers.*—Prize, G. Robson, Hull. Extra Prize, J. Greenbury, jun., Beverley. Highly Commended, S. Burns, Whitby. *Trumpeters.*—Prize, R. Clark, jun., Beverley. Highly Commended, S. Burn, Whitby (White); J. S. Hopper, Beverley. *Jacobins.*—Prize, T. C. Ellington, Woodmansey. Highly Commended, Miss A. Key, Beverley (Yellow). Commended, S. Burn, Whitby (Yellow). *Fantails.*—Prize, J. S. Hopper, Beverley. Extra Prize, J. Turner, Beverley. Highly Commended, S. Robson, Pocklington. Commended, J. Statbers, Tiekton; F. Key, Beverley. *Tumblers.*—Prize, D. B. Turner, Hull. Extra Prize, J. Greenbury, jun., Beverley (Splashed). *Barbs.*—Prize, H. Key, Beverley. Extra Prize, J. Greenbury, jun., Beverley. *Nuns.*—Prize, J. H. Oglesby, Hull. *Any other variety.*—Prize, W. E. Easton, Hull (Silver Owls). Prize, S. Robson, Pocklington (Silver Bald-head). Prize, J. Y. Watson, Beverley. Prize, R. Tate Driffield (Owls). Highly Commended, R. Clark, jun., Beverley (Owls). *EXTRA.*—Prize, W. Laybourn, Kelk (6 Turtle Doves).

RABBITS (best pair of any breed).—First and Second, P. Boulton, Beverley. Highly Commended, W. Charter, Driffield.

EXTRA STOCK.—Prizes withheld.

EXTRA POULTRY.—Prize, Mrs. Dossier, Warter, Pocklington (pair of Pea Birds). Prize, Mrs. Rickell, Warter, Pocklington (pair of White Pea Birds).

BRAHMA POOTRAS.

I TRUST, now that the breeding season is over, some incredulous folk have been convinced, from the sad experience of rearing cross-breeds, that no reliance can be placed on such as evidence the old adage of "kith after kin," or rather "*similia similibus*:" That Brahmas, or any other cross, can be cleverly run by persons having large numbers of stock to select and breed from is nothing to be wondered at, seeing how the Black Hamburgs, Dorkings, *cum multis aliis*, have reared their compound selves into the list of thorough-breeds, not having their claims even as such disputed; and now the Brahmas presume, having been doubted so long, to assert what their owners call their proper position as birds *per se*—that is, non-manufactured. I do not quarrel with any owner of Brahmas for their "trying it on," nor do I seek to disparage their usefulness; but I do sympathise with all those whose time and patience have been rewarded after waiting for a hatch to turn out even decent, to find themselves gammoned by a clutch of ill-savoured creatures; the egg-forwarder not only charging the amateur money for the privilege, but putting a direct damper on any future effort.

Mr. Henry Allen has bought eggs from Mr. Botham, of Slough, acting on the advice of "ALPHA." I suspect, after the last of the chickens, be it either eaten or thrown on the manure heap, he will write in his diary "Omega," and that pretty plainly too. Further comment is unnecessary; page 233, back, saves me the trouble.

Our favoured county (Devon), with its long line of coast, and very limited farms, many of them appendages to some other occupation, permit the naturalist to become acquainted with very many varieties of poultry and bird, less cared for by renters of costly and large farms. The innate love of sport, too, in Devonshire men is scarcely to be met with so universally in any other county; and, considering the number of fox-hounds, harriers, beagles, and deer-hounds kept, with the extraordinary difficulties in the way of hunting, and the certainty of your getting some one to use a stout pair of legs in your service, which said pair of

legs most probably (if in the interior of the country), have run two days a-week in the hunting season after fox or hare, and generally in at the death,—these little considerations will induce you to credit me, when I assure you that three years since I was able to put my hand on Brahmas, Andalusians, Black Hamburgs, &c., when such birds were difficult to obtain, and all were veritable crosses. Thus much for a very enclosed county.

The worst of palming off purely bred fowls as unmanufactured ones is the depriving the purchaser of eggs of every chance of the object sought after, and, indeed, building a gain on his loss. Buy the veritable animals, but not before you have satisfied yourself as to their breed; and do not be fretting and impairing your digestion by watching a hen sitting on bought eggs, with the certainty of wringing their necks at a month old; and take my word for it when you have had the experience of crosses that your humble servant has, you will say, that, with the exception of a very few classes of fowls, all the rest are "leather and prunella."—W. H., *Exeter*.

PONTEFRAC T AND WEST RIDING POULTRY SHOW.

THIS, the second annual Exhibition, was held in a field near the race ground on the 28th ult. The following were the awards:—

COCHIN-CHINA.—First and Second, W. Dawson, Mirfield. *Chickens*.—First, W. Dawson.
SPANISH.—Withheld.
DORKING.—First, S. Pickard, Wakefield. Second, T. Hudson, Wakefield. *Chickens*.—First, H. Heimsworth, Wakefield. Second, Mrs. Robinson.
HAMBURGS (Golden-spangled).—First, S. Pickard. Second, J. Crosland, jun. *Chickens*.—Prize, J. Crosland, jun.
HAMBURGS (Silver-spangled).—First, J. Crosland, jun. Second, J. Berton. *Chickens*.—First, J. Crosland, jun. Second, S. Townend.
HAMBURGS (Pencilled).—Withheld.
POLANDS (Golden-spangled).—Prize, F. Hardy, Bradford. *Chickens*.—Prize, F. Hardy.
POLANDS (Silver-spangled).—First, W. Dawson. Second, withheld. *Chickens*.—First, W. Dawson. Second, withheld.
GAME (Black-breasted and other Reds).—Prize, F. Hardy. *Chickens*.—Prize, F. Hardy.
GAMES (Whites and Piles).—Prize, J. Crosland, jun. *Chickens*.—First, J. Crosland, jun. Second, F. Hardy.
GAME (Black and Brassy-winged except Greys).—Prize, J. Crosland, jun. *Chickens*.—No competition.
GAME (Duckwing and other Greys and Blues).—Prize, J. Crosland, jun. *Chickens*.—First and Second, F. Hardy.
BANTAMS (White).—First, J. Crosland, jun. Second, F. Hardy. Third, S. Pickard.
BANTAMS (Gold and Silver-laced).—No competition.
BANTAMS (Black).—First, F. Hardy. Second, C. Whitton.
BANTAMS (Game).—First and Second, J. Crosland, jun. Commended, F. Hardy.
BANTAMS (any other breed).—First, W. Dawson (Sultans). Second, J. Crosland, jun. (Malays).
SWEEPSTAKE (for the best cock of any breed).—Prize, J. Crosland, jun. (Game Duckwing).
DUCKS (Aylesbury).—Prize, J. Maynard.
DUCKS (Rouen).—First, S. Pickard. Second, W. Pell.
JUDGES—Messrs. Naylor and Pearson.

COLOUR OF GREY DORKINGS.

"I am much puzzled in choosing my Grey Dorking pullets to send to a Poultry Show. The offspring of the same hens divide into two general hues. One I may call 'Iron-grey,' and the other 'Cinnamon-grey.' Which hue would be most likely to obtain a prize for 'Grey,' or 'Silver-grey,' Dorkings? I forward a sketch of each."—E. A. S.

[These queries will be best answered by our stating what the points of Silver-grey Dorkings should be. The cock should have a perfectly black breast and tail, white hackle and saddle. The pullets should have distinctly-marked black and white striped hackles. Salmon or ruddy breasts, light grey feathers, with white shafts. No speckle on the feathers, no mixture of darker ones. The ruddy tint should be confined to the breast, and should not, as it sometimes does, spread over the wings and even part of the back. At the same time it is fair to say, that birds without any such tint on the wings are very rare.

Either of the colours you mention will do for Grey Dorkings. The Iron-grey would come nearest to the Silver-grey. Prizes are most difficult to obtain in the Grey classes on account of the numbers and competition. In the Silver-grey, the only difficulty is to get birds of the exact colour. Succeeding in that, you may look for distinction.

No. 1, in the capital sketch you have forwarded to us, is the best colour for Grey Dorkings. It leaves nothing to desire or to find fault with. No. 2 is a true Silver-grey, if some of the ruddy tint on the plumage be got rid of. The breast and hackle are perfect, but the hackle *must be* light-grey with white shafts.]

CLASSIFICATION OF FOWLS.

(Concluded from page 266.)

THE third division of our domestic fowls, according to the arrangement previously given, comprises the BANTAMS and other dwarf or small kinds. I class them in three family groups:—First, the Japanese silk fowls; second, the feather-footed or true Bantams; and third, clean-legged dwarfs.

FIRST FAMILY GROUP (2 Classes):

First, White *Silky fowls*. Second, any other variety of Silky fowl.

SECOND FAMILY GROUP (3 Classes).

First, Single-combed, feather-footed White, as being the original variety from which the name of *Bantam* is derived. Second, the Black, Buff, or Spotted *Bantams*, with single combs and feathered feet. Third, the Old-spangled *Bantams*, or any other variety having rose combs and feathered legs.

The third family group includes all the clean-legged dwarfs, commonly called *Bantams*, though I believe the fowl originally brought from Bantam, the Dutch settlement in Java, to have been the feathered-legged White, heading the second group in this division; and, consequently, these clean-legged birds in this group are more dwarfs than Bantams, still the word Bantam seems from its common use almost to signify a dwarf or something small. These clean-legged dwarfs, or Bantams, are very numerous and especial favourites with many amateurs, though, I believe, they are mostly of mixed origin, and even of comparative modern manufacture, and they cannot be well accommodated with less than six classes.

First, Golden-laced Sebrights, dwarfs or Bantams. Second, Silver-laced Sebright, dwarfs or Bantams. Third, Game dwarfs or Bantams: these are, just now, such popular favourites, that they bid fair soon to demand as many classes for their exclusive use as the Game fowls do. Fourth, Rose-combed White dwarfs or Bantams. Fifth, Rose-combed Black dwarfs or Bantams. Sixth, any other variety of clean-legged dwarfs or Bantams.—B. P. BRENT.

DIMINISHING THE LABOUR OF BEES.

"I AM managing on a modification of the depriving system, and have several sorts of hives. I have several very strong stocks, one of which is in a square wood hive. On the 21st of June, finding the bees very strong, I placed on the top a square straw hive full of empty comb, weighing 11 lbs. altogether. I took it off on the 25th of July, when it weighed 49 lbs., and had thus produced me, in thirty-four days, 38 lbs. of beautiful honey. There is now in the stock-hive not less than from 20 lbs. to 30 lbs. of honey; this I shall not touch. I shall send to-morrow a glass of virgin honey to the Sudbury Show, weighing about 17 lbs."—T. NORRIS.

[We have always seen a marked economy of time and material in supplying bees with supers in which the combs have been preserved, and advise bee-keepers to pay more attention than is usually observable to the advantage of this practice. Every partially-filled hive or super of any kind ought to be reserved, clean, and dry, for future use.]

OUR LETTER BOX.

SIXTH CLAW AND SPRIGS ON SINGLE-COMBED DORKINGS.—"A Dorking cockerel on one foot has the fifth claw shorter than the other one, and there is a small claw growing out of it. Would this disqualify him as a show bird? My Dorkings are single-combed, but some of them have on each side at the back of it a small protuberance. Is this a fault, and if so, is it fair to cut it off for exhibition purposes?"—G. C.

[The sixth claw is not a disqualification; but it is not an advantage. If two birds were equal in every other particular, the sixth claw would give it against the owner of that appendage. This is, however, a rare case. The little side points at the back of the comb are of no importance in Dorkings. They are common in other breeds, and are generally cut off when young. We do not advise you to do so in this instance. In "Out-Door Gardening for the Many," published at our Office, you will find answers to any doubts you have as to time for kitchen garden operations.]

EXOTIC BEES (*A Devonshire Bee-Keeper*).—We have sent your specimens to a first authority for identification.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	AUGUST 16—22, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
16	Tu	<i>Erica suaveolens.</i>	30.039—29.840	80—42	S.W.	—	48 af 4	20 af 7	0 8	18	4 8	228
17	W	DUCHESS OF KENT BORN, 1786.	29.771—29.680	83—56	S.	—	49 4	18 7	12 8	19	3 56	229
18	Th	<i>Chironia linoides.</i>	29.705—29.620	83—55	S.	.01	51 4	16 7	25 8	20	3 43	230
19	F	<i>Clethra arborea.</i>	29.700—29.654	80—57	S.W.	—	53 4	14 7	41 8	21	3 30	231
20	S	<i>Bœckia diosmaefolia.</i>	29.871—29.777	71—46	N.W.	—	54 4	12 7	3 9	22	3 16	232
21	SUN	9 SUNDAY AFTER TRINITY.	29.846—29.653	63—51	W.	.36	56 4	10 7	32 9	23	3 2	233
22	M	Sun's declin. 11° 54' N.	29.961—29.774	69—41	S.W.	—	57 4	8 7	17 10	24	2 48	234

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 76.8° and 53.5°, respectively. The greatest heat, 94°, occurred on the 17th, in 1857; and the lowest cold, 46°, on the 18th, in 1840. During the period 151 days were fine, and on 73 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

As the majority of greenhouse plants are out in the open air, or in pits, where they have either set, or are setting, their blooms, preparations should be made for their return, by scrubbing and washing all the shelves of the greenhouse, and clearing out all crevices and corners, to banish all insects that may be secreting there. When by scrubbing, brushing, &c., you have brought everything to the ground, let no time be lost in clearing the insects, rubbish, &c., off the ground, and also out of the house. If painting and glazing are necessary, the sooner they are done the better, leaving the house entirely open for three weeks or a month, that the effluvia from white lead, which is prejudicial to plants, may pass off before the lights are put on again.

STOVE AND ORCHID-HOUSE.

SHIFT into pots a size larger any small plants, or indeed any plants that you are desirous to grow fast, or to make specimen plants, as soon as they have filled their pots with roots.

CUTTINGS inserted in pots of light, sandy soil, well drained at the bottom, will readily strike when plunged in the tan-bed, where there is a little bottom heat, and covered with bell-glasses; that will allow of the edge being pressed into the soil inside the pot.

Henceforward a certain degree of care and consideration will be necessary to have the summer growth of plants generally—and especially that of all those whose period of excitement is continued over a certain portion of the autumn—so arranged and circumstanced as to secure its perfect maturity, or, in gardening terms, to have it “well ripened.” For that purpose it is necessary to avoid the application of moisture beyond what is necessary to prevent a decided check in the growth of the plants, to expose them to the influence of light, by not suffering them to crowd or overhang each other, and to prevent from what cause soever the too sudden declension of the average temperature to which they are exposed.

THE ORCHIDACEOUS PLANTS that are growing to have plenty of moisture and heat, it will be easily seen when their growth is completed, and then it is proper to let them go to rest by gradually lessening the supply of water, and removing them to a cooler part of the house.

Any ORCHIDS that you are desirous of increasing may be separated or potted into small pots, or fastened to blocks, or placed in baskets. Fill pots with pieces of turfy peat the size of Walnuts, and peg them altogether until they form a cone above the pot. On the summit place your plant, which is, in fact, a piece cut off another plant, and with four pegs or wires make it fast. Let the roots go where they please in the pot, or outside it. Orchids depend more for sustenance upon the atmosphere and moisture, than upon the soil.

FORCING-HOUSES.

PEACHES.—It is advisable, when practicable, to get the No. 568.—VOL. XXII. No. 20.

lights off the early houses, presuming that the trees are fast advancing towards a state of rest. The practice is certainly not absolutely indispensable, but it is of much benefit to the trees. Whether the lights are off or on, attention may now be given to the repairs of glass or woodwork where necessary, and to finish with a coat of paint and whitewashing, if possible.

PINES.—The plants swelling their fruit to be carefully looked over in hot weather that they may receive no check for want of water. Continue to pot or plant suckers as soon as they are taken off the parent plants, as they are apt to shrivel much at this season, if left out of the ground. Attend to the state of the linings to dung pits, as all Pine plants, in whatever situation, will require a lively bottom heat of 90°.

VINES.—The houses containing late Grapes to be shut up warm and rather early (about four o'clock), in order to dispense, if possible, with fires, giving air by seven o'clock in the morning, and increasing it abundantly towards noon, and to be then diminished at intervals, in accordance with the state of the weather.

WILLIAM KEANE.

FLOWER-BEDS AND BEDDING—RUSTIC BEDS.

THE unique bed, or rustic bed, made out of and round the bole of the old Yew tree, is but one of several kinds of rustic beds which give great satisfaction to the owners thereof and to their visiting friends. After the system of basket and rustic beds, with their necessary accompaniments, comes the classic vase system; then the promenade method and the rock garden; then through an archway into the real Experimental itself, where is exemplified the composition and balance of colours along the left hand, and the true and beautiful ribbon style on the right. Then, again, there are the mixed borders; in front of shrubberies are lawn plants, as Pampas Grass and *Tritonia uvaria*, with Conifers and concise botanical plants; the rarest to be seen of which is a mathematical grass, that blooms and seeds, or tries to seed, from long horizontal spikes issuing from the top of the straw, or stem, in a ray all round. The name is *Chloris radiata*, a dwarf grass from the West Indies, which comes to perfection with us out of doors. It is the next prettiest thing after the Feather Grass for drying and using that way; but we have not had it long enough to enable me to chronicle its ways and its wants all the year round.

That frosted-silver stand, with the green glass for flowers, is still on my “keeping-room” table. The pyramid-like nosegay with which it is filled this week is overtopped by one spike of *Chloris radiata*, which looks like an umbrella without the covering. The handle is the straw; the joint the spring; the ribs the radiating axes on which the seeds come. That is our umbrella grass and their *Chloris radiata*.

But what I was going to answer is the oft-repeated question, Which is the best of all these plans for showing off flowers in a garden?

They are all best if the best is made of them; and if every style and part are just where they, or something like them, should be and nowhere else, or nothing else out of that particular style. When anything is in the right place, no matter how taste goes, it is the best thing for that place. But let me give a specimen.

Would two of these unique beds out of the old Yew tree, one on each side of a door or window, be in their proper places? That depends on what kind of house or other building the door and the window opened into. They would be quite correct for a Swiss cottage, a Russian log-house, or "my cottage near a wood" of the old song; but at the Experimental they would be entirely and altogether out of place next the doors or windows. The style of the building is as old as the time of Pericles, and much in his country's fashion; therefore, classic vases being part of the system, they stand nearest the mansion, and the rock and rustic works are in different and distant parts of the ground.

The next question is, How comes it about that you, Donald Beaton, having got your right foot into that celebrated garden, can abide to see rustic baskets about after all you have written against them? I have answered that question more than once, though not in black and white. What I object to is, the fearful expense of rustic work, and the still more awful bad taste of making rustic on classic modes, which is the same in my eye as making boots on wig-blocks, and wigs on lasts, or on boot-jacks. The one is not one bit more incongruous than the other, unless, indeed, every other thing about the garden is in true cockney style,—the most derisive term among artists in the county. Sir William Middleton asked me scores of times to get window-sill boxes of Stocks and Mignonne for Shrubland Park. "No, Sir William, I have too much respect for you, and for Shrubland Park, to introduce cockney gardening here." I knew all the time he was only trying what was in me, and I am quite sure he would be the first to order down the silly things. But in Park Lane, what is more refreshing to the eye and nose than the gay, sweet boxes of the London furnishing. If the garden is a London Square, in looks, in shape, and in planting, why, then, a rustic basket, after the Etruscan Vase, may be placed up in the angle formed by the bow-window of the front drawing-room. The best of the present style of rustic work about London for garden purposes are absolute trumperies tried by that test. But trumperies are just as useful in their day as the most classic articles. A ploughman admires the flower-vases at the Crystal Palace, which let us call the first step in civilisation. He must have something like them: he makes a rustic imitation in basket-work, and his children water the flowers. His son returns from the diggings rich enough to have a house and garden of his own; his father's wicker-baskets are to be his models, and he is happy and contented with any paltries: and why not? It is the second and right step in civilisation in his family; and it will be quite time enough to think of the Crystal Palace style when his sons return from Egypt and Syria to marry and settle down for life; which is the third and last step in that branch of the family. The first step was necessary in that branch, and the second was just as necessary and useful as the first and last.

But, there is no law against a man of taste having what he fancies; and if he fancies the most expensive, or the most ridiculous rustic-works in his garden, all that we can say is, that he will be sure to set them down in the most appropriate situations for them. But, after all, there is no rustic basket at the Experimental of the kind I ever made any objections to. They are more or less made after the fashion of the old Yew stump—all their rustic parts are clothed and hid by evergreens, with Ivy, Yew, or with *Cotoneaster microphylla*, and these hidden parts are made of stuff so durable as to last out an age. They look remarkably well, and set off the plants in them

rather better, to some notions, than the classic vases themselves. One is on a general model the shape of a garden basket, rounded at both ends and narrower where the handle of the basket springs across. It is eighteen feet long, and six feet wide, and the surface of the bed inside the basket is fifteen inches above the level of the grass or lawn. The sides and the handle are covered with Ivy, which is kept quite close.

Nothing would seem more easy than to make such a basket that would last a lifetime, at one-tenth of the price of a real rustic, that would be rickety in three or four years and patchy afterwards. The way to do it is to dig, or trench, the space first; then to place one row of bats or stones on the edge of the grass; then to plant small Ivy plants just inside the bats, and to take out the heads of the Ivy between the bats at the foundation; then draw the common soil of the bed up against the bats; after that lay bats in layers, and the back soil to bed and mortar them as it were. Raise the edging to any height you choose; then train the Ivy against the outside face of it, and, to hold it tight, push in the tops in the spaces between the top layer of bats—or anywhere else where the top of the Ivy reaches—or you can poke it in. Such a basket, or such an edging to a basket-bed, has been made in my presence the same day that the bed was planted about the middle of May; and it may be done any time from this to that time next year. But about the handle to the basket. Two Hazel-rods and two Ivy plants in pots, and each seven or eight feet long, would make the handle in five minutes. A rickety handle, it is true, but it would last one season; and a whole season is sufficient to make up one's mind to the expense of a galvanised iron rod. Or one might choose two smaller rods to be four or six inches apart, and a net-work of wire between them. The great thing is to have the handle of something to last one's lifetime, and to be entirely hidden by a covering of Ivy. Nothing is so good as Ivy, as it looks well winter and summer, and can be kept for years and years to the same shape and space as at the beginning. *Tropaeolum elegans* is one of the best creepers to run over the handle, but it looks just as well without. Nothing but the plain broad-leaved Ivy is used for these handles at the Experimental.

Two shades of scarlet Geraniums—a close-trussed kind like *Punch* for the middle, and a loose-headed one like the *Model Nosegay* round it; and an edging of the mixed common *Nasturtium* trained down, and most of the leaves kept picked off, will make as handsome a bed as any honest man need ever want, and a simpleton could see you had two kinds of Geraniums in it; but if your two plants were *Punch* and *Tom Thumb*, a practised eye might be deceived into the belief you had but one kind after all was done: hence one of the practical uses of using *Nosegays* along with close-headed trusses in lines or beds.

Another of these baskets, in the centre of "*Emerald Bay*," which lies to the right as one enters the Experimental, is a circle, perhaps ten feet across, fifteen or eighteen inches high, of rustic and Ivy sides, and a hidden post in the centre, which supports a circular rustic vase four feet across, and rather more than four feet above the lower bed. The top vase is of sound, hard wood, tarred. *Cotoneaster microphylla* is planted just inside it, and is trained down to hide the sides; then a circle of *White Ivy-leaf* Geranium to train down over the *microphylla*, and to fasten to it; the rest of the top being the *Shrubland Rose* Petunia pegged down and kept low for fear of the gales across this "*Bay*." Now, that top is very rusticated; but the rusticology of the thing is subdued, and is not made a part of the design on the cockney model. Evergreens hide the post in winter, and old Wallflowers in the beginning of summer, till *Mrs. Vernon*, the tallest of all the *Nosegays*, rises and carries the day for itself. A row of large, old *Tom Thumbs* come next this *Nosegay*, and a row of white between *Tom* and the Ivy sides. This, too, I am persuaded, is one of the

highest compositions in this country. I never yet saw anything in shading to equal the effect of—say, two feet of *Tom Thumb* in bloom, against three feet of *Mrs. Vernon* rising to a pyramidal form. You may try it in a six feet-wide circle. One *Mrs. Vernon* in the very centre, and four *Mrs. Vernons* round it, and eighteen inches from the centre; then a row or two rows of your largest *Tom Thumbs*, according to size—but have them tall, as *Mrs. Vernon* is the tallest of all bedding Geraniums, and have a row of *Flower of the Day* in small young plants round the outside. Then of an evening, when the sun is down enough to throw the light across your shoulders, look on that bed in full bloom, and if you ever saw a better, just let us know. That bed, in that light, or in the forenoon, is just as telling at three hundred yards off as when you are within ten feet of it.

I do not much like flat beds anywhere. You cannot shade so effectively when all the flowers are on the same level; therefore, unless the bed is planted with one kind of plant, I prefer a rise in the centre of it. Even when I had to plant large beds with one kind of plant throughout, I used the oldest and the largest plants for the centre. This is not one of those fancies where one man's opinion is just as good as that of any other person. There is a principle in it, from which the more we depart the farther we are from the mark; we are all striving to hit the bull's eye.

D. BEATON.

WORSLEY HALL.

I PAID a hurried visit to this beautiful residence of the Earl of Ellesmere on the 25th of June; a general description of which, by our friend Mr. Appleby, will be found at pp. 245 and 260, Vol. XIX., and a plan and description of half the new flower garden, which will be found at p. 400, Vol. XXI. Possessing, as our friend does, the rare faculty of combining in his descriptions of places in one picture the more striking features with a delineation of those minute practical details that render such descriptions not only interesting but instructive, it would be vain to go over similar ground; but yet, though I can offer nothing like a feast, I thought I might present a few scattered crumbs worthy of being collected in our cottage bread-basket.

The mansion is placed on such an elevated platform, that, though backed and winged by masses of wood, it stands out clearly and distinctly for fully the half of its height. The village of Worsley, in the immediate neighbourhood, tells its own tale of large-hearted benevolence. From all the upper windows on the south side of the mansion views will be obtained of bustling activity, even of numbers of coke-ovens, the smoke from which will not be the most agreeable. The commanding position of the mansion conjured up at once reminiscences of the olden time, when the feudal chieftain of a castle exercised despotic sway in its neighbourhood. In these days its prominence, in connection with its nearness to the comfortable-looking village, and the views of hard-working activity, tell us that the proprietors would rather exercise a legitimate influence upon their humbler neighbours through their sympathies and affections. It is made the boast of some mansions that they stand alone in their solitary grandeur, in the middle of their immense parks, with not another habitation within the extended home-park demesne. Rather would we boast of those mansions that, from their position and vicinity, exercise a beneficial influence on the surrounding neighbourhood. The eye is ever alive to the perceptions of beauty and order. Such gratification makes no one the poorer. I can recollect how the benevolent Loudon had to write and petition before the ugly dead walls on the Bayswater, and Knightsbridge, and Kensington roads were removed and open palisading put in their place. Were Hyde Park and Kensington Gardens made worse or poorer when thousands of travellers on the highway could have a look at their beauties? Our nobility and gentry are now rightly proving that their mansions and grounds are capable of exercising a beneficial elevating influence upon their humbler neighbours instead of fostering envy or discontent.

After meeting Mr. Davidson at the kitchen garden we walked through the wood described by Mr. Appleby, so well furnished with Laurels and Rhododendrons as undergrowth, and reached the mansion with its flower gardens, terraces, and green slopes. The green grass and bedding plants are almost the sole attractions

on these terraces. On looking at them from the park before reaching the kitchen garden, it struck me that the slopes presented a rather bare appearance. This idea was not dissipated altogether when looking down upon them and the flower garden at the bottom, even though the long ribbon borders enlivened it considerably. Our readers will form an idea for themselves by looking at the following simple diagrams, which, without making any pretensions to accuracy, will yet give a better idea of the place than mere description:—

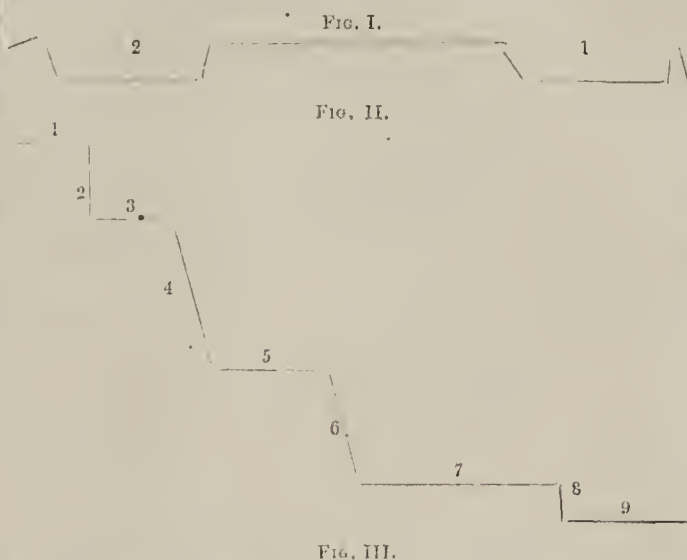


Fig. I. Platform, from memory, on which the mansion and first terrace are placed, with sunk panel flower gardens, on east and west side as marked, 1 and 2.

Fig. II. Something like the position of terraces and flower garden on south side of mansion.

1. Part of platform for mansion and upper-terrace. Ground plan for south side shown in Fig. III.

2. Terrace or conservative wall, covered with suitable plants, with a balustrade above the upper-ground level, which it is proposed to remove, as it now obstructs the view of the flower garden, No. 7, from the lower living-rooms.

3. Terrace of grass and gravel walk, with ribbon borders on east and west sides.

4. Steep sloping bank of turf.

5. Terrace of turf, with wide straight gravel walk in its centre. The further side next to bank (6) is covered with fine specimens of Irish Yews, about forty feet apart. On the east and west sides, bounded by the gravel walk on one side and the bank (4) on the other, are ribbon borders on the turf, about 200 feet in length. These terraces, until reaching the straight walk on (5) partake of the ground plan as shown in Fig. III. This bold out-jutting of the centre furnishes fine sites for these ribbon borders on the east and west sides.

6. Sloping grass bank, running straight from end to end, and thus contrasting with the terraces above.

7. Flower garden, the two ends of which are the same, divided in the centre by a gravel walk about eighty feet wide. Plan of one side of this garden given at p. 400, Vol. XXI, to which I beg to refer. Opposite the centre of this gravel walk, and also in the centre of the out-jutting part, as shown in Fig. III., and down the steep sloping bank (4) are wide grass steps. Similar steps are also placed in the centre of each wing of this slope.

8. Small slopes and walks between flower garden and lake.

9. Part of lake, with rich park scenery beyond. Ground of park rather level, and thus presenting a strong contrast with the mansion, fronted by its terraces and slopes.

Now for a few random crumbs. The first that suggested itself was the thorough effectiveness of Mr. Davidson's mode of planting his borders and beds. Almost all the beds were full enough on the 24th of June; and these beds would never be disturbed, unless in rare instances, either for flowers or cuttings, until the frost mastered them. Many who pretend to group their beds, get them filled pretty well by September and October. The

charm of the summer is gone before then, and grumblings and ill-satisfied looks take away the interest of the flower garden. If there are not conveniences for keeping and growing plants for a certain number of beds, it would be better for all parties if these beds were either reduced in size or some of them done away with, than having the whole presenting a starved, naked appearance in July. Some object to plant thick, because the beds get too massive, and one plant only injures another; but there is no great difficulty in disleafing and thinning in autumn to keep all right in this respect, and that is more pleasant than worrying and worrying because no methods will cause the plants to cover in time enough. I have long been a thick planter, but Mr. Davidson outdoes me. I feel certain that through July and onwards, these groups at Worsley must have been and continue to be a picture.

2. The out-jutting ground-plan of the first terrace permits of a fine octagon basin of water in front of the mansion. This is surrounded with elegant scroll beds, and these all filled with the blue *Lobelia erinus*. Contrasted with the light stone work, the effect was good—far better than would have resulted from a mere mixture or contrasting of colours.

3. The gardens 1 and 2 in Fig. I. were very beautiful and nicely arranged. Mr. Davidson, I am sure, will forgive me if I allude to one feature I would alter. The garden No. 1, for instance, is bounded on the south side by a nice Holly-hedge; behind that is a small border for Roses, &c.; then a level space of lawn and narrow gravel walks before coming to the small sloping bank which bounds the panel. The space between the bank and the hedge may be twelve or fourteen feet. Along the side of the walk, on the grass, half standard Roses are planted at regular distances; and each of these has a little round bed some fifteen or eighteen inches in diameter, and filled, too, with bedding plants. Now, I find from experience, from having Rose trees in an avenue of beds, that such flowers do not combine with bedding plants, except for a short period in the season. Then there is the constant disfigurement they give to grounds when thus placed singly as their petals begin to fall. One of our greatest gardeners used to have beds of Perpetual Roses in his grouped flower garden, and it became a sort of standing discussion between us. He has now removed the whole, as the black, unhealthy foliage in the autumn became too unbearable by the side of glowing Geraniums and Calceolarias. Roses, however lovely, are, therefore, best by themselves in general. Besides these considerations, the little dots of flowers at their bottom, in these gardens, are apt to divert the mind from the contrasted masses of colour in the panel garden. With such gorgeous masses these dots neither combine nor contrast. Were the space all empty, there would be more of a relief, and a background. If mere clothing and contrast were wanted, then I should like to substitute upright pointed bushes of Juniper, Yew, Box, &c., clipped so as to be in keeping with the architecture of the mansion, and have no flowers except in the sunk panel.

4. It will be perceived that in these terraces, which I should presume to be some 700 feet or more in length, there is nothing between the first terrace wall and the splendid flower garden near the lake to arrest the eye, except the row of Irish Yews on platform (5). The rest is all grass and gravel on the level, or grass in slopes, with the exception of the ribbon borders some ten or twelve feet wide. I did not think of asking Mr. Davidson if that were the state of things decided upon. Nor do I consider myself competent to pass a judgment; but, consulting my own feelings, I should wish for more stand points, in the way of artistic architectural-looking shrubs. Every person, however, has a right to have his own tastes gratified if he can. Some friends of mine, and their employers, too, are delightfully pleased when they can get their grouped beds in a symmetrical garden as nearly as possible of one uniform height. In many cases, as in a sunk panel, this is desirable; but carried out in all cases, this monotonous uniformity of level would, to my eye, be perfectly unbearable. I should long for relieving points in the shape of raised beds, standards in beds, elegant shrubs by themselves, vases, &c. There is variety in these grounds, merely from level and slope; but still, with the exception of the Yews, the variety leaves you only green grass still. The ribbon borders, as generally planted without starers, are just a level mass of lines of colour, when seen from a height. I dare say I should be anything but right, but I certainly should like more regular-formed evergreen shrubs on these splendid terraces.

5. Under such circumstances, the wide gravel walk that divides the flower garden (7), comes in as a relief, merely from its colour.

Otherwise I am not one of those who hold that the wider a gravel walk is, the more noble and splendid it is. In general, apart from all purposes of utility, the greater the width the greater the waste and ugliness. I know I can have no sympathy with those, who, in a limited space, prefer to look upon brown or red gravel instead of the green grass. The grass staircases at present seemed in unison with the massive simplicity of the slopes.

6. The flower garden, the plan of half of which is given at page 400, Vol. XXI., is beautifully planted, so as to command efficiency, simplicity, and novelty. Mr. Davidson, I presume, changes his planting every year. He kindly helped me to note down what the beds were filled with, but my book got drenched in a thunder-shower, and rendered the most of the marks unreadable. By looking at the plan, however, I shall be able to indicate the chief differences. For instance: 1 and 3 on each side of the basin of water are *Brilliant* Scarlet Geranium; 2 and 4 *Trentham* Rose ditto; 15 and 16 are blue Larkspur, edged with *Mangle's* Geranium. The two scroll beds to the right and left of these, not numbered, on each side, are yellow *Calceolarias*. The hand group at each end are planted similarly, as 12 and 7, *Spothea Californica* (?) or something like that, very like the old annual *Cladanthus Arabicus*, an orange syngenesian plant; 6, 8, 11, 13, rose Verbenas; 5, 9, 10, 14, purple Verbenas. The box chain pattern had the triangles planted with variegated Alyssum, and the small pathways between filled in with fine burnt red earth. The four raised beds, 17, 25, 29, and 37, were planted with three rings each. Centre, *Compactum* Geranium; second, *Caie's* yellow *Calceolaria*; and widest near the base *Flower of the Day* Geranium. The round flat beds at the corners were also ringed with dark *Calceolaria*, *Aurea floribunda* (yellow), and *Tom Thumb*.

We have previously seen and practised ringing in circles, and also dotting in oblong beds; but I never before saw the system so systematically carried out of having, as it were, a ground colour for a short ribbon, and splashing that ground colour with other distinct colours at regular distances, and standing boldly above the ground colour, as was exemplified in the whole of the oblong beds on grass on the outside of the figure. As I said, my notes fail me; but suppose you begin at 18, and keep in mind that the opposite bed, 35, will be planted in the same manner, the following description will give a clear outline of the whole, even though my recollection should not be correct:—Make four circles in 18, so that the circumference of each shall be two or more feet from the other, and at least a foot from the outside of the bed. Plant these circles as follows:—1, yellow *Calceolaria*, *Kay's*; 2, blue Larkspur; 3, *Frogmore* Scarlet; 4, *Prince of Orange* *Calceolaria*. Then fill in your ground colour all over with *Purple King* Verbena, pegged close down. Take the second bed, put in your four circles, with *Compactum* Geranium, *Kay's* *Calceolaria*, *Cerise Unique* Geranium, and blue Larkspur, and fill in the ground colour with variegated Alyssum. Take the third bed and have four circles, *Calceolaria*, *Prince of Orange*; *Tom Thumb* Geranium; blue Larkspur; and *Phoebe* *Calceolaria*, a dark bronzy brown; with a ground-colour of *Enothera prostrata*, and so on through all the figures. These circles rising considerably above the ground colour, even though not kept excessively trim, will present a great deal more variety in the same space; and when once introduced, we shall find many low-growing plants extremely useful for ground colour, and that will scarcely require any pegging. Mr. Davidson uses *Lobelia erinus* freely. The striped Verbena *Manetti*, or *Imperatrice Josephine*, would also be very useful for this purpose.

7. The above mode of planting comes in as an addition to the large artistic basin of water; the four Yews (B), the four large vases on raised pedestals at (A), and the four large raised circles already mentioned, give a great degree of variety and points of attraction to each half of this beautiful garden. Could we wish for an alteration, it would be with these four raised beds. Their base is on the same level as the rest of the beds, the diameter at base about fourteen feet, the height to the culminating point about six feet. The thus raising them to give variety and banish tameness was a happy idea. In such a garden, such simply raised beds are not artistic enough. If the sides were raised to the height of two feet or more with stone, or such composition as Mr. Seeley showed at Chiswick last year, these beds would then be in unison with the four large vases and the elegant stone reservoir.

I must stop, however, picking up more crumbs for the present, either here or in the well-managed kitchen garden, by merely

mentioning, that the main ribbon borders were planted with the red Penstemons, and dark Calceolarias in the centre; two rows of yellow Calceolarias on each side; then two rows of Scarlet Geraniums on each side; and bordered, I think, either with white variegated Alyssum, or *Mangle's* Variegated Geranium.

R. FISH.

THE EFFECTS OF DROUGHT ON FRUIT TREES—WATERING, &c.

THE evil effects of long-continued drought on fruit trees will be peculiarly manifest this summer in those parts of our native isle where such extremes have prevailed. Very strong trees producing little or no fruit may not show it. Indeed, in many such cases it will prove a positive benefit; but with weak subjects, and those which, being past all grossness, are carrying crops, the case will be widely different. This has certainly been one of the strangest springs on record as regards fruit; and when to such is added a burning July, with scarcely a drop of rain in many quarters, we have, indeed, an awkward case in the fruit way.

The injurious effects of drought on bearing trees, especially if of some age, will thus manifest themselves. The fruits will become hide-bound, will crack or rift, or they will cast fruit; and the fruits when they come to table will be dry or vapid. As to the wood, it will cease to extend, and the spurs will lack material wherewith to compound blossoms; added to this that a general constriction of the very wood, or alburnous matter of the tree, will take place, which will subsequently prove a serious impediment to the extension and well-being of the tree. Another important point: these subjects are almost sure to be infested with insects. These are the conditions that our fruit-insects rejoice in; seldom will they overrun a tree which has never undergone abuse, and which possesses a continuous and healthy root action. This holds good with the scale, aphides in general, and particularly with regard to that infamous pest, the red spider. Let any one suffer his Peach trees to become exceedingly dry at root, and render them no assistance from the time of the fruits ripening, and it is almost certain that he will be overrun with the spider. And now it is that the fate of the trees for the next year, at least, is sealed, as regards fruiting. The buds, or spurs, from which we expect blossom, having been previously half starved, become henceforth almost dried, and have not power to complete the blossom-bud. If any should form they will assuredly lack energies in the ensuing spring. Watering, therefore, in such cases is of the utmost importance; indeed, it is more through the lack of proper appliances at proper periods, in one shape or other, than from our untoward seasons, that such complaints exist about fruits. There is, perhaps, no period of so much importance in this respect as the month of July; the condition the tree is under during this month seals its fate in very many cases of both the present and succeeding crops. But as there are different modes of handling the waterpot, I must offer a little advice.

Generally, trees suffering from drought have a kind of crust over the soil's surface. It is of little use pouring water on encrusted soil. The surface, therefore, should be well loosened with a fork, and if adhesive well divided. And now there should be a coating of half-rotten manure, of any kind, placed over the area of the roots three inches in thickness. On this surfacing the water may be applied liberally; but it is well to use rosed waterpots, that it may trickle down steadily. In cases of severe drought such trees should receive three separate doses—three days in succession, one each day. It is in vain to expect to do justice to it at one watering. Under such circumstances little waterings will not do. The first day it may be moderate; the second day increased; and the third day most of all. This will prove thoroughly efficient; and the probability is that the trees operated on will not require another watering: this will fairly put them on their legs, as country people say. The certain effects of it will be to infuse new life into both fruit and wood; and the damaging constriction occurring to the very constitution of the tree will be arrested.

Here let me speak of young fruit trees. Hitherto I have been dealing with trees of full bearing habits. Now these require a different consideration. They cannot wait for water until July in cases of previous drought. They should be kept in a continuous and steady growth; so that, from the droughts of spring until the middle of August they may require attention as to watering. At the same time let it be remembered that these droughts are powerful agents in inducing fruitful habits. This

we must not lose sight of; and where we desire their agency to check luxuriance, not to be too officious with the waterpot. It becomes every one, therefore, to carefully ascertain the precise effects of drought on fruit trees; and in so doing to well distinguish between old and hard-worked trees, young trees just coming into full bearing, and young trees planted a year or two. To one portion it is highly prejudicial; to the other beneficial. I do not say that young and gross trees will benefit by any amount of drought; but that, up to a certain point, it is an agent that we gladly make use of: in gardening phraseology it "fames the tree." It is commonly remarked amongst gardeners, that the best way to check an overproud fruit tree is to catch it with a very heavy crop, and to afford it no assistance. This is not devoid of truth; but there are always several phases in which to view a result. I have seen trees in such condition fearfully exhausted with one of these punishing crops.

But there is yet another point of view as to the effects of drought on young fruit trees. Very frequently there is a necessity for a free extension of the branches in order to cut out the fabric of a substantial tree, or to fill some allotted space of a wall, or for any peculiar mode of training. Where such are the objects, the parties are justified in promoting growth irrespective of immediate profit. In this case the waterpot may be used; but the finger-and-thumb pinching, alias stopping, may keep pace with it.

It may seem strange to young beginners in the fruitist's art to hear those who are experienced in fruit culture at one period recommending caution as to a damp bottom, at another equally strenuous as to water-pot work; but so it must and ought to be. As far as moisture is concerned, either extreme is perilous. To write about fruit culture from November to March, and again from May to September, are two very different affairs: the one being, in general, preparatory matters, the other cultural.

We all know that there are very poor crops of fruit this season, taking the country through; and that under such circumstances strong young trees, especially Pears, are apt to run exceedingly to wood. Had it been a very moist as well as warm summer, such trees would have been in a most riotous condition, having no work to do; but there would have been plenty of work for the root-pruner in the autumn or winter. As it is, there will be much stopping requisite, and thinning out to be performed. As to watering, the Peach and Nectarine claim special attention; few trees suffer sooner from drought, if carrying a crop of fruit. Many of our shy-wooded Pears, too, benefit considerably by a good watering when the fruit should swell most rapidly, and this, in the main, will be through July and into the beginning of August. It is most essential to the size, style, and, I may add, texture of the fruit, that this first swelling be carried out with freedom,—no checks. As for the texture, there can be little doubt that the mellow, melting texture which most people so esteem in the Pear is dependent in no small degree on a steady and unfailing supply of moisture, sufficient for the present purpose, during the fruit-swelling season. R. ERRINGTON.

HARDY FLOWERING HERBACEOUS PLANTS.

(Continued from page 258.)

ANTIRRHINUM—SNAPDRAGON.

Nat. ord. Scrophulariaceæ. Linn. Didynamia Angiospermia.

GENERIC CHARACTER.—*Calyx* five-leaved. *Corolla* not spurred, gibbous at the base; upper lip bifid, reflexed; lower lip trifid; closed by the prominent palate. *Capsule* oblique at the base, not valved, opening at the end by three pores.

ANTIRRHINUM ANGUSTIFOLIUM (narrow-leaved). We believe this is only a variety of *A. siculum*. 2 ft. Pink. August. Europe.

A. MAJUS (greater). *Leaves* lanceolate, opposite; *flowers* racemose; *sepals* glandular, hairy, ovate, blunt. 2 ft. Various. July. England.

A. MEDIUM (intermediate). This appears to be a variety of *A. majus*. 2 ft. Pink. August. Europe.

A. SEMPERVIRENS (evergreen). *Leaves* petiolate, opposite, elliptic, rather downy; *flowers* few, in loose racemes, calycine lobes lanceolate, acute, reflexed at top. 2 ft. Pink. August. Pyrenees.

A. SICULUM (Sicilian). *Leaves* linear lanceolate, ternate; *flowers* racemose; *sepals* glandular, hairy, lanceolate, acute. 1 ft. White. July. Sicily.

A. TORTUOSUM (twisted). *Plant* glabrous; *branches* twisted at the base; *leaves* linear, acute, opposite, or three in a whorl;

flowers racemosely spicate; calycine lobes oblong-ovate, obtuse. 1 ft. Purple. June. Italy.

The Snapdragons are a showy tribe of plants, increased by seeds. Sown in May, or June, by cuttings of short side-shoots; planted in sand under a hand-glass in May. The seedlings should be transplanted, as soon as they are large enough, into nursery-beds, and planted finally where they are to bloom in September. The cuttings, when rooted, should be treated similarly. *A. majus* is little better than a biennial; but the best varieties may be preserved many years by planting them in a dry, calcareous soil, and increasing them by cuttings. The soil for the whole genus should be dry, rich, and light.

AQUILEGIA—COLUMBINE.

Nat. ord. Ranunculaceæ. Linn. Polyandria Pentagynia.

GENERIC CHARACTER.—*Calyx* none. *Petals* five. *Neetaries* five, horned, between the petals. *Capsules* five, distinct.

AQUILEGIA ALPINA (alpine). *Spurs* straight, somewhat incurved at the end, half the length of the petal limb; *stems* two or three-flowered, leafy; *leaves* finely cut. 1 ft. Blue. June. Switzerland.

A. ANEMONOIDES (Anemone-like). *Spurs* straight, length of petals; *peduncles* radicle, one-flowered, almost naked. 1 ft. Purple. July. Altaia Mountains, Siberia.

A. ARCTICA (arctic). 1 ft. Reddish-yellow. June. Siberia.

A. ATRO-PURPUREA (dark purple). *Spurs* straight, long as petals; *styles*, *stamens*, and *sepals* as long as petals. 1 ft. Purple. June. Siberia.

A. CANADENSIS (Canadian). *Spurs* straight, longer than limb; *styles* and *stamens* protruding; *sepals* acutish, rather longer than petals; segments of *leaves* three-parted. 2 ft. Reddish-orange. June. N. America.

A. FORMOSA (beautiful). *Spurs* straight, much longer than petals and stamens; *styles* not protruding; *sepals* lanceolate, much longer than petals. 2 ft. Orange. June. Kamschatka.

A. FRAGRANS (sweet-scented). *Spurs* much incurved; *sepals* ovate-lanceolate, acute, half the length of petals. 6 in. Yellow-striped. May. Himalayas.

A. GARNIERIANA (Miss Garnier's). 2 ft. Purple-striped. June. Hybrid, between *A. Siberica* and *A. vulgaris*.

A. GLANDULOSA (glandular). *Spurs* incurved, half the length of petals; upper part of plant and capsules hairy; hairs glandular. 2 ft. White and blue. June. Siberia.

A. ——— CONCOLOR (one-coloured). 2 ft. Violet. July. Altaia.

A. ——— DISCOLOR (two-coloured). 1½ ft. Bluish-white. Siberia.

A. GRANDIFLORA (large-flowered). *Spurs* straight, long as limb; *sepals* oval; *stem* few-flowered; *leaves* deeply divided. 2 ft. Blue. June. Siberia.

A. JUCUNDA (joyous-looking). *Spurs* thick, curved, much shorter than the limb; *pistils* longer than stamens; fruit ovoid, umbilicate at base. 1½ ft. Blue. June. Siberia.

A. LEPTOCERAS (slender-horned). *Spurs* straight, slender, twice length of limb; *sepals* rhomboid-lanceolate; *radical leaves* biternate, glaucous beneath; *leaflets* wedge-lobed. 1 ft. Blue. June. Russia.

A. PYRENAICA (Pyrenean). *Spurs* straight, length of limb; *stem* one-flowered, nearly naked; *leaf-segments* deeply cut into linear lobes. 1 ft. Blue. July. Pyrenees.

A. SKINNERI (Mr. Skinner's). *Plant* glabrous; *spurs* straight, five times longer than limb; *stamens* much protruding and longer than styles. 1 ft. Red and green. May. Guatemala.

A. VISCOSA (clammy). *Spurs* incurved; *capsules* hairy; *stem* one or few-flowered; *leaves* covered with viscid down; *styles* not longer than stamens. 2 ft. Purple. June. France.

A. VULGARIS (common). *Spurs* incurved; *capsules* hairy; *stem* leafy, many-flowered; *leaves* nearly smooth; *styles* not longer than stamens. 2 ft. Various. June. Britain.

The Aquilegias are all very beautiful and curious-formed flowers, exceedingly interesting. Blue, the desirable colour, predominates. Most of them are natives of the colder regions of the globe: hence they are very hardy, though they often perish from damp and our changeable climate. A mixture of dry, sandy peat is desirable and useful for most of them, though the common border-soil suits our common Columbine.

Choice varieties can only be continued by dividing the plants in April. Take up such, and, with a sharp knife, cut them into divisions, not too small, taking care that each division has roots

to it. Plant them in a shady place, and water them freely if the weather is dry. When fairly-established, take them up and plant them where they are to bloom. The others should be propagated by seeds. Sow on a prepared bed early in spring, and transplant, as soon as the plants can be handled, into a bed fully exposed to the sun. Let the bed be prepared by adding a liberal portion of peat to the soil. In August they will be strong enough to plant out in the place where they are to bloom. *A. glandulosa* is a very lovely species, and its varieties are equally handsome.

ARABIS—WALL-CRESS.

Nat. ord. Cruciferae. Linn. Tetradynamia.

GENERIC CHARACTER.—*Siliques* linear, valves flat, one-nerved in the middle. *Seeds* single row in each cell.

ARABIS ALBIDA (whitish). *Leaves* few-toothed, hoary, hairs branched; *radical-leaves* obovate-oblong; *stem-leaves* cordate-sagittate, stem-clasping. 1 ft. White. July. Caucasus.

A. ——— VARIEGATA (variegated-leaved). 1 ft. White. March. Hybrid. Caucasus.

A. ALPINA (alpine). *Leaves* lanceolate, acute, many-toothed, hairy, hairs branched; *radical-leaves* slightly stalked; *stem-leaves* cordate, stem-clasping. 1 ft. White and yellow. May. Switzerland.

A. ——— CLUSIANA (Clusius's). 1 ft. White. May. Pyrenees.

A. BELLIDIFOLIA (Daisy-leaved). *Leaves* smooth, nearly entire; *radical-leaves* obovate; *stem-leaves* ovate; *raceme* erect; *pods* four times as long as their stalk. 1 ft. Whitish-yellow. June. Switzerland.

A. CÆRULEA (blue). *Leaves* smooth, nearly entire; *radical-leaves* oblong ovate; *stem-leaves* oblong, few; *raceme* nodding; *pods* erect. 1 ft. Blue. June. Switzerland.

A. DASYCARPA (thick-podded). *Leaves* hairy, hairs stellate; *stem-leaves* sagittate, nearly entire; *pods* hairy-scabrous, rather erect. 1 ft. White. June. Podolia.

A. LUCIDA (shining-leaved). *Leaves* stem-clasping, shining. 1 ft. White. June. Hungary.

A. ——— VARIEGATA (variegated-striped). 1 ft. White. June. Hybrid. Gardens.

A. PETRÆA (rock). *Leaves* smooth, fringed with hairs; *radical-leaves* stalked, entire, toothed, or lyrate; *stem-leaves* oblong-linear, entire, or toothed; *pods* erectly spreading. 1 ft. White. June. Austria.

A. ROSEA (rose). *Stem-leaves* oblong, rather cordate and stem-clasping, scabrous with branched hairs; *pedicels* longer than calyx; *flowers* in close racemes. 1 ft. Rose. February. Calabria.

A. SCHIVERECKIANA (Schivereck's). *Leaves* entire, scabrous, hairs branched, crowded; *radical-leaves* rosellate, obovate; *stem-leaves* oblong, erect, sessile; *pods* erect, smooth. 1 ft. White. June. Austria.

A. STELLULATA (small-starred). *Leaves* scabrous with stellate hairs; *radical-leaves* obovate; *stem-leaves* oblong, very few; *pods* twice length of pedicels. 1 ft. White. June. Italy.

A. UNDULATA (waved). *Stem* erect, hairy; *leaves* oblong, toothed, wavy; *pods* spreading; *style* breadth of pod. 1 ft. White. June. Europe.

The plants of this tribe are generally cultivated as rock-plants, but may be grown on any dry border if planted on little hillocks.

Propagated by cuttings taken off as soon as the flowering season is over, and planted in very sandy soil in a shady place. When rooted, transplant them where they are to bloom. They will quickly spread, and form large patches, and look very gay the year following. *A. rosea* is rather scarce.

ARMERIA—THRIFT.

Nat. ord. Plumbaginaceæ. Linn. Pentandria Pentagynia.

GENERIC CHARACTER.—*Calyx* two-leaved, entire, plaited, scarious. *Petals* five. *Seeds* one, superior. *Flowers* in heads, with a common, many-leaved involucre.

ARMERIA ALPINA (alpine) *Scape* flattened, smooth; *leaves* of *involucre* elliptic-rounded; *leaves* linear, flat, acute, membranous at the edge. 1 ft. Purple. July. Corinthia.

A. CEPHALOTES (roundheaded). *Scape* simple, with single head; *leaves* oblong, smooth, acuminate, base narrowed; *calyx* scales ovate, acuminate. 1 ft. Pink. June. Algarvia.

A. DENTICULATA (toothed). *Plant* smooth; *scape* simple; *leaves* linear, flat, the first toothletted; *leaves* of *involucre* ovate-lanceolate, acuminate. 2 ft. Flesh. June. Naples.

A. LATIFOLIA (broad-leaved). *Leaves* long, lanceolate, entire,

smooth, three-nerved, acute, downy; leaves of involucre acute, edged. 2 ft. Pink. July. Algarvia.

A. LITTORALIS (seashore). *Scape* rounded, smooth; *outer leaves of involucre* lanceolate, acute, as long as the head; *leaves* linear, flat, fringed. 1 ft. Pink. July. S. of Europe.

A. PINIFOLIA (Pine-leaved). 1 ft. Pink. June. Portugal.

A. PLANTAGINEA (Plantain-leaved). *Scape* rounded, roughish; *outer leaves of involucre* oblong-ovate, acute; *inner leaves* oblong, obtuse; *leaves* lanceolate, flat, three-nerved. 1 ft. Red. June. S. of Europe.

A. SCORZONEREFOLIA (Scorzonera-leaved). *Scape* rounded, smooth; *outer leaves of involucre* elliptical, mucronate; *leaves* lanceolate, flat, acute, three-nerved. 1 ft. Scarlet. June. S. of Europe.

A. VULGARIS COCCINEA (scarlet, common). *Scape* rounded, smooth; *outer leaves of involucre* acute; *leaves* linear, flat, obtuse. 6 in. Red. September. Gardens.

This is a beautiful, almost-neglected tribe, well worthy of a place in every garden, requiring to be grown in a well-drained sandy-loamy soil. Many of them are rather tender, especially in low, damp situations: hence it is desirable to keep duplicates in pots, and give them the shelter of a cold pit through winter.

Propagated by dividing the plants in April, and planting the divisions in a shady place in sand till established. Also by seeds sown in spring, and transplanted when large enough where they are to bloom. If put in patches of three together they will make the finer display.

ARUM.

Nat. ord. Aroides. Linn. Monœcia Polyandria.

GENERIC CHARACTER. — *Spathe* one-leaved, convolute at the base. *Perianth* none. *Spadix* with germs at the base, naked above. *Berry* one-celled, one-seeded.

ARUM ATRO-RUBENS (dark-purple streaked). *Stem* none; *leaves* ternate, ovate, half as long as the *spadix*. 1 ft. Brown. July. N. America.

A. BULBIFERUM (bulb-bearing). *Stem* none; *leaves* decompound, bulb-bearing; *spadix* oblong, ovate, shorter than the obtuse veiny *spathe*. 3 ft. Purple. April. Bengal.

A. DRACONTIUM (green dragon). *Leaves* pedate, entire; *spadix* longer than *spathe*, which is oblong, convolute. 1 ft. Green. June. N. America.

A. DRACUNCULUS (common dragon). *Leaves* pedate, entire; *spathe* ovate, flat, smooth; *spadix* lanceolate, shorter than *spathe*. 3 ft. Brownish-purple. July. S. of Europe.

A. ITALICUM (Italian). *Stem* none; *leaves* hastate-sagittate, veins white; lobes auricled, divaricating; *spadix* club-shaped, shorter than *spathe*. 2 ft. Light-yellow. June. Italy.

A. ORIENTALE (oriental). 1 ft. White. June. Tauria.

A. PALMATUM (hand-shaped). 2 ft. Brown. June. S. of Europe.

A. PICTUM (painted). *Stem* none; *leaves* heart-shaped, veins coloured white; *spathe* stalkless; *spadix* club-shaped, dark purple. 2 ft. Brown. May. Corsica.

A. PROBOSCIDEUM (proboscis-like). *Stem* none; *leaves* hastate; *spathe* bent downwards, subulate. 1 ft. Purple. July. Apennines.

A. TENUIFOLIUM (slender-leaved). *Stem* none; *leaves* linear-lanceolate; *spadix* subulate, longer than lanceolate *spathe*. 1 ft. Brown. June. S. of Europe.

A. TRIPHYLLUM (three-leaved). *Stem* none; *leaves* ternate, entire; *spathe* ovate, acuminate, flat-stalked; *spadix* club-shaped, shorter than *spathe*. 1 ft. Brown. June. N. America.

A. ——— ZEBRINUM (zebra-like). 1 ft. Striped. Brown. N. America.

This tribe is more curious than beautiful; yet, on account of their broad, cap-like spathes and pistils, with stems curiously spotted, they are worthy of a place in a garden.

Propagated by taking up the roots when the leaves decay, and cutting them into divisions of two or four, retaining roots to each division. The best soil is one of a sandy-loamy nature, and deep in quantity; for the roots run deep, or they will not flower. The *A. zebrium* is the best of them. T. APPELEY.

(To be continued.)

KEW GARDENS. — A drinking fountain or two, for these splendid and extensive pleasure-grounds for the people, are now, from the very great numbers flocking to them, very much required; till such a needful want is supplied, a delicious glass of pure spring

water may be had (gratis) by all visitors, of the official attendant in livery in charge of the lower room of the New Museum, opposite the Palm-house in the Botanic Gardens.

TENDER GARDEN PLANTS.

THERE are few terms used in horticultural phraseology more likely to mislead the inexperienced than the word "tender," for in the general intercourse of life the term is used to indicate something delicate or of feeble growth; whereas, in the gardening world, many plants said to be tender excel in robust growth most of our indigenous plants. For instance: the Potato, which is, perhaps, as susceptible of cold as anything, will outgrow most other garden vegetables when under favourable circumstances. Whilst in the field, Buck Wheat, and this newly introduced cattle food, *Sorghum saccharatum*, are both robust growers; and we all know no flower-garden plant thrives more luxuriantly than the Heliotrope, and none shows the effects of frost sooner. In fact, delicacy of constitution is a widely different thing from robustness of growth; many tropical plants thriving well out of doors in the summer season with us, which are difficult to keep through the winter even with the aid of warm glass structures. But now and then there are instances of tender plants surviving mild winters. The roots of Scarlet Runner Beans have been known to do so, but they seldom do much good; and the frail winter Scarlet Geraniums, killed down by frost in November, have in some places shot up again. While beds of Sweet Marjorum, usually considered an annual, have lived through and look as green and fresh as Thyme or Sage. But it is often the cold of spring which proves fatal to plants, the same as it does to fruits; and it is not unlikely that many of the plants which have stood over the winter may be either killed or very much injured by the late frosts, so almost certain to come when the Apple is about bursting into bloom. For 6° frost are more fatal at that period than double the amount at an earlier season.

Returning, however, to tender plants, or such as are considered so in the kitchen garden, we have the Scarlet Runner and Dwarf French Beans, Nasturtium, several kinds of sweet herbs, Potatoes, and Tobacco. Besides which some hardy plants are irrecoverably injured by frost when they are subjected to it at an early period of their growth. A crop of Turnips exposed to frost when in the seed-leaf receive a check which invariably results in their running to flower instead of forming a bulb. This is difficult to account for on any other principle, than that the exposure to unusual cold precipitates the plant into its original wild condition, which was little better than that of a weed; and we know that all cultivated plants have a tendency to return to their original condition where not restrained by skilful culture; and no family is more prone to return to their wild state, or what is equally bad, a useless hybrid one, than the whole of the Cabbage family. Well-directed skill, however, has prevented this from becoming a serious evil, except in certain cases; and therefore we shall only refer to the evils which a sharp frost does on the first crop of out-door Turnips. As every one is anxious to have them as early as possible, seed is often sown much earlier than it ought to be, and in mild seasons it comes up before the late spring frosts are over, and is caught in one; and though the vitality of the plant remains uninjured, it is possible it may be sharpened—its usefulness is at an end, for it will invariably turn blue in the centre, and start and run to flower at once.

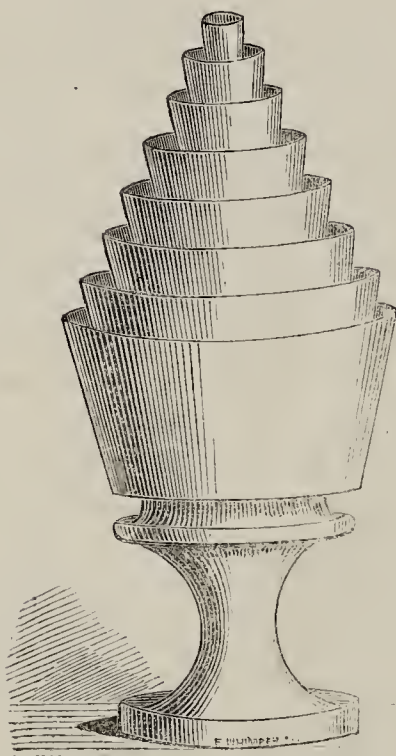
To prevent this, I know of no better plan than to cover up the Turnip-bed on cold nights, and, as a further precaution, sow successive crops. The covering for such a crop may be of any homely construction. A few boughs laid on the ground and mats spread over, or if the boughs are leafy they will do without mats: the only thing is to prevent the frost settling on the plant, and a very slight protection will prevent this. It is needless here to mention, that besides the above care in their early growth, young Turnips require other attention as well, not the least being a good thinning in sufficient time to ensure the plants that are left a robust growth. Good ground, of course, we will suppose they have already, as the value of an early Turnip entitles them to every consideration that way, not the least being a good watering with manure water if the weather continues very dry.

Sharp frost on the young growth is also fatal to many other plants. Kidney Beans are, of course, quite killed with it; and Potatoes, if not killed outright, have to begin their growth afresh, and are, in consequence, much later: while, on the other hand, the absence of frost in winter encourages the growth of Cabbage,

so as to occasion many of them to run to seed in early spring that ought not to have done so until the year following. The causes of this are somewhat different from those operating on the Turnips. In the latter the check has thrown them into flower: whereas in the case of the Cabbage the plant has, to a certain degree, matured its growth earlier than usual; and the flowering season for such plants having arrived, it avails itself of that. This case, unlike that of the Turnips, admits of no remedy: the only one being the same as that recommended for the Turnips—i.e., not to depend on one crop alone, but to sow and plant in succession. With all the knowledge we possess, and even aided by the mystical skill of a Moore, a Murphy, or a Zadkiel, we are not yet able to discern the signs of the times; and whether the coming summer and succeeding winter be cold, wet, or dry ones, we are wisely kept in the dark. It therefore behoves us to make such provision as is best calculated to suit all emergencies; and if in so doing we err, it will even then be on the right side.—J. ROBSON.

BOUQUET HOLDER.

I WENT to a China store and selected about six or eight China or Liverpool-ware cups, of such sizes as would just fit into or nest in each other,—commencing at the largest sized coffee-cup, or small bowl, and ending with the smallest of a child's tea-set. I then placed under the bottom of each of them a circular piece of wood (such as come with ribbons, but anything else will answer the purpose), to separate the cups, so as to leave a space for putting the flowers into. A drawing will assist you in comprehending the idea.



It is not necessary that the cups should be one uniform shape, as none but the lowest cup will be seen when the flowers are arranged in it. The lower cup should be mounted on a wooden base, with a circular rim around the upper edge of it to hold the cup firmly; or it may be placed inside of an ornamental vase.

GARDENING IN VICTORIA.

THE taste for the higher branches of gardening in Victoria, is, as yet, but very slightly developed. The production of fruit and vegetables seems to be the aim of most of those whose means would enable them to do much in gardening as a high art.

Matters, however, are improving. The establishment of Horticultural Societies and the example of the curators of the Botanical Gardens in Melbourne and Geelong have had an influence in improving our gardens, and, no doubt, we shall one

day reach a high position in that respect. Our facilities are great, and money plentiful. The taste only wants cultivating.

As to fruit and vegetables, it would gladden the hearts of you "Cottage Gardeners," to see the crops raised here with so little trouble. English gardeners would not believe me if I were to state what I have seen in the way of Peaches, Pears, Grapes, Apples, &c. The old *Ribston Pippin* Apple would astonish them. The tree grows in a luxuriant and remarkably healthy manner, and the fruit is magnificent. At a late Show (at which I acted as one of the Judges), in one of the exhibitions were twelve *Ribstons*, and none of them measured less than twelve inches in circumference. As clean, well-coloured, and high-flavoured as any Apple I ever saw.

Grapes are now being planted to a large extent for wine making, particularly in the neighbourhood of Geelong, which seems most favourable for their culture. I am just about to plant twenty acres, and some day I may send the Editors of *THE COTTAGE GARDENER* a sample of what we can do in Australia in the shape of wine making.—J. M., *Geelong, Victoria*.

HOLCUS SACCHARATUS.

I SEND you my experience of this year. On the 2nd of May I planted four square yards under a west wall in my garden; each seed six inches apart. This did not come up. On the 24th of May I planted the same ground again the same distance, leaving one row drilled as thick as Peas. This was soon up. On the 21st of July I cut. The stems came sixteen inches high. On the 28th I cut again nine inches. August the 4th the growth is but two inches. As yet, the first cutting produced a marvellous growth, more than an inch a-day. The second cutting is a failure. I shall cut it nine inches, and mark the number of days. The row drilled and unthinned is but four inches high, now weak and dwindling.—R. N. P., *Woolstone*.

PRIMULAS.

IN reference to your article on "the Genus *Primula*," in No. 565, my own experience differs from the conclusion that Cowslip seed sown in a shady place will produce Primrose, &c.

About a dozen years ago, in laying in grass a bit of ground "where once a garden smiled," and which is much shaded, no plants appeared for five or six years, and then they came in abundance, but all *Cowslips*, of many varieties of colour.

There may have been one or two *Polyanthuses*, but certainly not one Primrose.

I consider it rather remarkable that the seed should have lain so long dormant, and grown well there after.—Z. Q.

TRAINING PEGS OF FERN STALKS.

I ENCLOSE you stalks of the leaf or frond of the Brake Fern (*Pteris aquilina*), which a friend of mine is using to stick Verbenas, &c.

It strikes me that you would find them very suitable to recommend them to florists. Besides, the cutting and preparing of them would give employment to the children of the rural population. The children here (Edgbaston) get them for 4d. or 6d. per hundred.—JOS. LLOYD PHELPS.

[This is not new, but it is a reminder of very efficient pegs for training Verbenas, &c. on open beds. The stem of the frond reversed, causes the side branches to form efficient hooks when cut short.—EDS.]

ENTOMOLOGICAL SOCIETY'S MEETING.

THE August meeting of the Entomological Society was held on the 1st inst.; the chair, in the absence of the President, being taken by J. O. Westwood, Esq., M.A. Amongst the donations recorded since the last meeting were the publications of the Royal, Linnæan, and Zoological Societies of London, the Zoological and Botanical Society of Vienna, the Royal Bavarian Academy, the Entomological Society of Stettin, &c. Likewise the second part of the republication of Mr. Curtis's excellent memoirs on insects obnoxious to agriculturists.

Mr. McLachlan exhibited various interesting species of British

Lepidoptera, one of which he had reared from the stems of the wild Carrot.

Mr. F. Bond exhibited the larva of the curious little Beetle *Drilus flavescens*, found near Freshwater, in the Isle of Wight. This larva is parasitic within the shell of the common snail; and the female, which is similar to the larva in its habits, is destitute of wings and elytra.

Mr. Lewis exhibited specimens of the very rare *Chlœnius Schrankii* taken at Luccombe, in the Isle of Wight.

Mr. Westwood exhibited a portion of a mass of cocoon of the social Moth *Ilithyia sociella*, which had been found undigested in the stomach of a cow, where, Mr. Westwood supposed, the mass had been introduced with the ordinary food of the animal; it being the habit of this Moth to inhabit (parasitically) the nests of Humble-bees. The cow, therefore, had most probably come upon the nest of one of the Moss-carder Humble-bees covered with grass, and had taken it into her mouth with a large mouthful of the latter. Mr. Bond stated, in confirmation of this supposition, that he had found the mass of cocoons of this species of Moth in the nest of the Moss-carder Humble-bee.

Dr. Wallace exhibited various interesting Lepidoptera from Waterford and Killarney, including a specimen of *Deilephila lineata*, taken at Tremore in 1856.

Mr. Mitford also exhibited various British Lepidoptera recently captured.

Mr. Westwood mentioned a remarkable instance of the power of scent possessed by the Rove Beetle *Cetonia aurata*, having observed many hundred specimens of that species assembled in patches of a dozen or a score on the trunk of a young Elm tree, which was sweating to death in consequence of the attacks of *Scolytus destructor*; the Beetles having been evidently attracted from considerable distances by the scent of the extravasated sap which was exuding upon the surface of the bark from the base to the top of the tree.

Mr. Bates, who has during the last nine years resided in the interior of Brazil for the purpose of forming collections of insects, attended this meeting of the Society on his return to England, and was admitted a member; the Chairman complimenting him on the great services which he had rendered to Entomology by enriching our cabinets with the insects of South America, of which previously they were in comparative poverty when contrasted with the museums of the Continent.

Mr. Tegetmeier communicated an interesting process in bee-keeping which had been recently practised in order to obtain a hive of pure honey. On the 25th of June about half the Bees in a hive, together with the queen, were driven into a spare hive, in which they immediately commenced working as usual; whilst the Bees remaining in the old hive set to work to raise a new queen according to Schirach's statement. In three weeks' time the whole of the unhatched brood was developed in the old hive. The remainder of the Bees, with their new queen, as soon as the latter was produced, were then driven from the old hive, which now contained only honey in the cells.

NEW OR RARE PLANTS.

RHODODENDRON KENDRICKII, var. *LATIFOLIUM* (*Broad-leaved Kendrick Rhododendron*).

Native of the Bhotan Mountains, at elevations of 7000 feet, where it was found by Nuttall's nephew, Mr. Booth. "It is hardy in the climate of Cheshire." Flowers large, bright scarlet, and very beautiful.—(*Botanical Magazine*, t. 5129.)

DENDROBIUM ALBO-SANGUINEUM (*White and Crimson Dendrobium*).

Native of Attran River, Moulmein, whence it was imported by Messrs. Veitch & Sons, of the Exeter and Chelsea Nurseries. It flowered at Kew during April.—(*Ibid.* t. 5130.)

ÆSCHYNANTHUS CORDIFOLIUS (*Heart-leaved Æschynanthus*).

Imported by Messrs. Veitch & Sons from Borneo, where it was discovered by their collector, Mr. T. Lobb. Flowers scarlet, streaked in the throat with black.—(*Ibid.* t. 5131).

MONOCHLETUM ENSIFERUM (*Sword-bearing Monochætum*).

"It is a native of the mountains of Oaxaca, in Mexico, where it appears to have been discovered by M. Ghiesbrecht." Flowers purplish-rose colour. Its specific name seems to allude to "a lengthened, bright-red, cultriform appendage" of each sterile anther.—(*Ibid.* t. 5132.)

BRACHYCHITON BIDWILLI (*Bidwill's Brachychiton*).

Sent by Mr. Bidwill, in 1851, from the Widebay district of north-east Australia. Blooms in a stove from autumn until spring. Flowers red.—(*Ibid.* t. 5133.)

DENDROMECON RIGIDUM (*Rigid Tree-Poppy*).

Discovered by the unfortunate Douglas in California; but first imported by Messrs. Veitch & Sons through their collector, Mr. W. Lobb. "It has proved quite hardy, and is really a handsome plant, flowering in the summer months." Colour yellow.—(*Ibid.* t. 5134.)

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 276.)

PEARS.

BEURRÉ BACHELIER.—Fruit large and obovate, somewhat irregular in its outline. Skin greenish-yellow, strewed with russety dots. Eye small and closed, set in a shallow basin. Stalk short. Flesh buttery and melting, rich, juicy, sugary, and aromatic.

An excellent pear, ripe in December. The tree is hardy, forms a handsome pyramid, and is a good bearer.

Beurré Beauchamps. See *Bergamotte Cadette*.

Beurré Beaumont. See *Bezi Vaet*.

BEURRÉ BENNETT.—Fruit medium sized, turbinate and irregular in its outline. Skin pale yellow, with a red blush on the side next the sun, and covered with a net-work of russet. Eye small. Stalk an inch long. Flesh juicy, sweet, and aromatic. Ripe in January and February.

BEURRÉ BENOÎT (*Auguste Benoît*; *Benoît*).—Fruit medium sized, obovate. Skin pale yellow, strewed with patches and dots of pale brown russet. Eye open, placed in a round and shallow basin. Stalk three quarters of an inch long, inserted in a narrow cavity. Flesh white, fine-grained, melting, and very juicy, sugary, and perfumed.

A good pear, ripe in September.

BEURRÉ BERCKMANS.—Fruit medium sized, turbinate. Skin of a rich lemon-yellow colour, thickly covered all over with russety specks and dots, but round the stalk and over the crown it is completely covered with a coat of cinnamon-coloured russet. Eye open, set in a round furrowed basin. Stalk an inch long, inserted without depression. Flesh white, tender, fine-grained, juicy, sugary, and richly flavoured.

A handsome and very excellent pear, ripe in November and December. The tree makes a handsome pyramid, and is a good bearer.

Beurré Blanc. See *White Doyenné*.

Beurré Blanc de Jersey. See *Bezi de la Motte*.

Beurré du Bois. See *Flemish Beauty*.

BEURRÉ BOSC (*Beurré d'Apremont*; *Beurré Rose*; *Calebasse Bosc*; *Marianne Nouvelle*).—Fruit large, pyriform. Skin almost entirely covered with thin cinnamon-coloured russet, leaving here and there only a small portion of the yellow ground colour visible. Eye open, placed in a shallow basin. Stalk about an inch and a half long, inserted without depression. Flesh white, melting, and buttery, very juicy, rich, and aromatic.

A dessert pear of first-rate quality, ripe in October and November. The tree is a good bearer; but unless grown against a wall, or in a warm situation, the fruit is apt to be crisp or only half-melting.

Beurré de Bourgogne. See *Flemish Beauty*.

BEURRÉ BRETONNEAU (*Dr. Bretonneau*).—Fruit large, more or less pyriform. Skin rough, with brown russet, which considerably covers the greenish-yellow ground, and sometimes with a brownish-red on the side next the sun. Eye uneven, set in a moderately deep basin. Stalk

an inch long, stout. Flesh yellowish-white, and when it ripens tender, juicy, and well flavoured.

A late dessert pear, in use from March till May; but as it rarely ripens except in very warm summers, the flesh is generally crisp, or at best only half-melting.

BEURRÉ BURNICQ.—Fruit medium sized, obovate. Skin rough, from a covering of thick russet, and strewed with grey specks. Stalk half an inch long, inserted in a small cavity. Flesh greenish-white, buttery, and melting, with a powerful aroma. Ripe in the end of October.

Beurré Cambron. See *Glout Morceau*.

BEURRÉ DE CAPIAUMONT (*Aurore*; *Beurré Aurore*; *Capiaumont*; *Calebasse Vasse*).—Fruit medium sized, obtuse-pyriform. Skin pale yellow in the shade, almost entirely covered with cinnamon-coloured russet, and numerous grey specks, and orange-red next the sun. Eye large and open, level with the surface. Stalk an inch long, fleshy at the base, inserted without depression. Flesh white, delicate, buttery, and melting, juicy, rich, and sugary.

An excellent autumn pear, ripe in October. The tree is hardy, an abundant bearer, and succeeds well either as a standard or a pyramid.

Beurré des Charneuses. See *Fondante des Charneuses*.

Beurré de Chaumontel. See *Chaumontel*.

BEURRÉ CLAIRGEAU.—Fruit large, curved-pyriform. Skin smooth and shining, of a fine lemon-yellow colour, and with a tinge of orange-red on the side next the sun; it is thickly covered all over with large russety dots and patches of thin delicate russet, particularly round the stalk. Eye small and open, level with the surface. Stalk half an inch long, stout, and rather fleshy, with a swollen lip on one side of it. Flesh white, crisp or half-melting, coarse-grained, juicy, sweet, and slightly musky.

A handsome and showy pear, ripe in November. Its appearance is its greatest recommendation.

Beurré Comice de Toulon. See *Vicar of Winkfield*.

BEURRÉ COPRETZ.—Fruit below medium size, oval, even, and regularly formed. Skin smooth, of an uniform greenish-yellow colour, covered with large patches and dots of russet. Eye small and open, set in a very shallow basin. Stalk very thick and fleshy, inserted without a cavity. Flesh greenish-white, coarse-grained, juicy, and sugary, but with little flavour. November.

Beurré Curtet. See *Comte de Lamy*.

Beurré Davis. See *Flemish Beauty*.

Beurré Davy. See *Flemish Beauty*.

BEURRÉ DEFAIS.—Fruit large, pyramidal. Skin of a pale golden-yellow colour, dotted with large brown russety dots, and with an orange tinge next the sun. Eye very small and open, sometimes wanting, placed in a deep, narrow cavity. Stalk an inch long, inserted in a cavity. Flesh melting, juicy, sugary, and well flavoured. Ripe in December.

BEURRÉ DELFOSSE (*Delfosse Bourgmestre*; *Philippe Delfosse*).—Fruit above medium size, obovate. Skin pale yellow, with a blush of pale red on the side next the sun, and covered with patches and dots of thin russet. Eye closed. Stalk three quarters of an inch long, and slender. Flesh buttery, melting, richly flavoured, and highly aromatic. December and January.

BEURRÉ DEROUNEAU.—Fruit medium sized, obovate. Skin green, changing to yellowish as it ripens on the shaded side, and clouded with brownish-red on the side next the sun. Eye open. Stalk half an inch long, thick and woody. Flesh rather gritty, pretty juicy, sweet and aromatic.

A second-rate pear, ripe in November and December.

BEURRÉ DIEL (*Beurré Incomparable*; *Beurré Magnifique*; *Beurré Royal*; *De Trois Tours*; *Dillen*; *Gros Dillen*; *Dorothée Royale*; *Gratioli d'Hiver*; *Grosse Dorothée*; *Melon*).—Fruit varying from medium size to

very large; obovate. Skin greenish-yellow, covered with numerous large russety dots, and some markings of russet. Eye open, with erect segments set in an uneven basin. Stalk an inch long, stout, and inserted in an open uneven cavity. Flesh yellowish-white, tender, very buttery and melting, rich, sugary, and aromatic.

A first-rate pear, ripe during October and November. The tree is hardy, and an abundant bearer. Succeeds well as a standard.

Beurré Deschamps. See *Beurré d'Arenberg*.

Beurré Doré. See *Brown Beurré*.

Beurré Drapiez. See *Urbaniste*.

BEURRÉ DUHAUME.—Fruit medium sized, roundish, and very much flattened. Skin rough to the feel, covered with thin russet, which is thickly strewed with large russet dots. Eye open, set in an uneven basin. Stalk short, thick, and fleshy, obliquely inserted by the side of a fleshy lip. Flesh buttery, melting, and very juicy, with a rich and vinous flavour.

A very excellent pear, in use from December to February. The tree has a diffuse and bushy habit of growth.

(To be continued.)

QUERIES AND ANSWERS.

HEATING WATER TO BE APPLIED TO VINES.

"Would it be advisable, or worth the extra trouble, to raise the temperature of water from a pond, which averages 60°, or so, to that of 75° or 80°, before applying it to a vinery border made inside of a house, at the present period of the year, the Grapes being just stoned? I am informed that Mr. Crawshay, some years ago, beat all England in producing the finest-flavoured and largest bunches of Grapes, and at last they (the Horticultural Society, I suppose) were obliged to prohibit his exhibiting again, as there was no chance for others. I contend that Mr. Dowding produced the finest Grapes, having been told so by a worthy gardener in whom I place great reliance."—A GARDENER.

[We would advise heating the water 10°, at least, if convenient; that is, to 70°. We know nothing of such restrictions by the Horticultural Society. Mr. Dowding and Mr. Crawshay each showed first-rate Grapes. We are not aware that ever these growers came into competition with each other. "Heard-say" evidence is never trustworthy.]

MANAGEMENT OF HYDRANGEA CUTTINGS.

"I struck last spring a few cuttings of Hydrangea, I believe the common sort, with plain leaves and pinky-white blossom. They are now healthy growing plants. Will you tell me if I should cut them in or not just before the ensuing winter; and whether I should allow all the heads of blossom-buds in the spring after to develop themselves, or remove all but one?"—A CONSTANT READER.

[The young plants of Hydrangea from cuttings, which you struck last spring, must not be cut back this season. Keep them growing on, as well as you can till the end of September, but do not give them another shift; rather make up for room at the roots by giving them double the usual quantity of water till the middle of September. Be sure the leaves do not damp in October or November. Keep the plants between wet and dry till the end of February; then more water, but no shift to another pot till you see the flower-buds in the centre of the top part. Then give them a pretty good shift,—say pots two sizes larger than those they are in now; also the very best and richest soil you can honestly lay your hands upon; and also pot them fully one inch deeper than they were before, and the collar of the plant will make fresh roots, and help on that magnificent head for which the good old "Idrengi" has been so long a favourite with skilful and earnest growers.

Now, for the future of those young, healthy plants of Hydrangea, for which you deserve much credit for keeping so healthy through such a severe and trying summer. They will do next spring what their mothers and grandmothers did when we

first began to grow them—that is to say, some out of the lot will not bloom at all next year, nor look as if they intended to make any attempt of the kind. The way we used to get out of the ridicule of some next-door neighbours for failing to bloom all our Hydrangeas was this—"Stop till the end of April, and you shall see what you never saw before; and as to their not flowering, why, their mothers did so before them." Between the middle and end of April, all those that did not show bloom, or had not the hard bloom-knot which could be felt on the points, we used to cut back to the pair of buds next the pot. When these two buds made each two leaves, we shook the plants out of the pots entirely, and began again as we did the year before, after the cuttings were struck. Our rooted cuttings being just one year or fifteen months old. We left on all the roots, put them into small pots, and we only kept the stronger of the two shoots; and, if you believe it, the heads which such treated plants used to bloom were enormous; they said "prodigious," in those days, after Baillie Nicol Jarvey. Since then, however, people found out a faster way for getting these "prodigious" heads. They take the cuttings from old, strong plants in September, with the top knot, the sign for bloom, on them. One cutting is planted in each small pot, they are rooted quickly in a hotbed, kept all the winter in the small pots, and in spring, when the bloom is budded, a larger shift is given, and so heads are obtained according to good or bad luck.]

ASH TREE INJURED BY THE CATERPILLARS OF A GOAT MOTH.

"I have sent you two caterpillars out of fifty I found in an Ash tree. The tree is twenty-five feet in height and two feet six inches in circumference round the stem or stock, and quite a young tree. These caterpillars have made ten large wounds in the tree, and have runs or holes in the centre from one wound to the other. I think it must be the caterpillar of the Goat Moth; but would be obliged for the name of it. If so, it is quite as destructive as *Scolytus* mentioned the other day by Mr. Bailey, as I have little doubt the tree in question will die."—T.H.

[The caterpillars are those of the Goat Moth, *Cossus ligniperda*. We have given a description of the moth and caterpillar in the next column, from Stainton's "Manual of British Butterflies and Moths." We will only add, as a further illustration of the wood-boring power of these caterpillars, that we have heard of one being placed inadvertently on the slab of a mahogany sideboard, and left there all night under a glass. In the morning the caterpillar was gone, having pierced through the slab.]

DELPHINIUM FORMOSUM CULTURE—CALCEOLARIA FAILURES.

"Oblige me by giving some hints relative to the culture of that most brilliant and beautiful plant the *Delphinium formosum*. Some seed was given me last October, with instructions to sow a part at once for blooming in June, and more in March for autumn blooming. I did so. My early plants did not bloom till July, and soon went over; so that, as the later ones are not yet even showing blossom, my bed is quite dull. I am now told the plant is a hardy perennial. Shall I be more likely to have a succession of bloom by treating it as such, or as an annual?"

"Perhaps some of those who recently complained so much of the Calceolaria failure may be glad to know that by far the easiest and most certain way of having a good supply of these pretty plants is to raise them from seed, which should be sown as soon as ripe. The pot filled with good mould within two inches of the rim; then a layer of sand, well pressed down, and the seed scattered lightly, not covered with sand or mould, but a piece of glass put over the top of the pot. The young plants must be thinned out as soon as they can be well seen; pricked off into thimble-pots when they have about six leaves; and constantly shifted until hedged out."—A SUBSCRIBER.

[The same treatment which you give to any of the common perennial Larkspurs will do for *Delphinium formosum*. Some plants of it have shed their seeds in our own borders, and the seedlings are now up as thick as grass. If we follow these seedlings till they bloom, you may learn the rest from what Mr. Beaton wrote lately on this as a bedding-plant. We shall leave our seedlings as they stand till they begin to show some growth.

In the spring we shall then transplant them in the kitchen garden six inches apart and one foot between the rows. There they shall remain all next summer, and in the autumn some of them will bloom, and most of them will be strong enough to be removed where they are to remain; and any time during the winter, when the weather is mild, will do to transplant them. As for soil, the whole family is much like the Cabbage tribe—we cannot have the ground too good for them. Seeds, also, sown in the open air up to the middle of September will stand the winter, and be nearly as forward as our seedlings. Any time in March and April would do to sow these seeds; but in spring you should sow them very thin, as the seedlings ought to stand all that summer in the same beds. Gardeners could sow their seeds now in pots, and keep them green and growing all through the winter and spring. Give each plant a single pot in March, and plant them out in May to bloom the following autumn. When this *Delphinium* is bedded, the great secret is to keep the roots young, like Dahlias, by dividing them as soon as the bloom is over, and by well nursing the young, or newly-divided stock, all that autumn, and to plant them rather thick in the flower-beds in the spring. None of this section should be left to bloom from the same roots in the shrubberies more than three years. But the grand point is to have them divided early in August every year, and to give them rich, fresh soil every spring.

Bedding Calceolarias do no good from seed in the way you mention. Your plan is only for the *herbaceous* kinds.]

NEW BOOKS.

BRITISH MOTHS AND BUTTERFLIES.*—"The object of this work is to supply, in a small compass and for a low price, the greatest possible amount of information likely to be useful to beginners in the pursuit of butterflies and moths." So announces the preface, and we assure our readers that the author has fully attained that object. The two volumes are very pocketable; give such descriptions as enable the uninformed to identify both the caterpillars and the winged parents; tell when and where to search for them; and are illustrated by many excellently executed woodcuts. We will extract one of the briefest descriptions as a specimen; but before doing so must express a hope that in a future edition an alphabetical index may be added. Such works are greatly impaired in usefulness if without this aid to prompt reference.

"*Cossus*.—Antennæ of the male pectinated at the tip, of the female dentate; wings large and broad; abdomen stout.

"*C. ligniperda* (Goat). 2 inches 10 lines by 3 inches 9 lines. Fore wings pale brown, clouded with whitish, and marked with short, irregular, wavy, transverse lines; hind wings pale smoky, with similar but indistinct markings. June, July.

Larva dirty-yellowish or flesh-colour, reddish-black on the back; head black (*Ochsenheimer*). In the wood of Willows, Poplars, Oaks, &c. Aug. to Oct.

"Common in most places; less frequent in the North. The fatid odour of the larva enables us to recognise its presence by the smell it imparts to the ground over which it has crawled."

THE SCIENCE OF GARDENING.

(Continued from page 273.)

MANURES are also of benefit to plants by affording some of the gases of the atmosphere to their roots in a concentrated form. A soil, when first turned up by the spade or plough, has generally a red tint, of various intensity, which, by a few hours' exposure to the air, subsides into a grey or black hue. The first colour appears to arise from the oxide of iron, which all soils contain, being in the state of the red or protoxide; by absorbing more oxygen during the exposure it is converted into the black or peroxide. Hence one of the benefits of frequently stirring soils: the roots of incumbent plants abstract the extra dose of oxygen, and reconvert it to the protoxide. Coal ashes, in common with all carbonaceous matters, have the power of strongly attracting oxygen. Every gardener may have observed how rapidly a bright spade of iron left foul with coal ashes becomes covered with rust, or red oxide. All animal and vegetable manures absorb oxygen from the air during putrefaction. If it be in-

* *A Manual of British Butterflies and Moths*. By H. T. Stainton. Two vols. London: J. Van Voorst.

quired of what benefit this property is to plants, since the gases are frequently presented to them in the atmosphere, it admits the ready answer, that they enjoy the additional quantity which is thus collected to the vicinity of their roots, without the latter source being diminished; and, that plants are benefited by such additional application to their rootlets has been proved by the experiments of Mr. Hill, already quoted.

Again, if the water in which the roots of a plant are immersed be contained in a close bottle only partially filled with the water, while the remainder is occupied by atmospheric air, the oxygen in this air will slowly diminish, being absorbed by the roots through the medium of the water. The roots extracting it from the water, and the water absorbing it from the air. If carbonic acid, nitrogen, or hydrogen, is substituted for the atmospheric air in the bottle, the plant droops and dies in a few days.

These facts evince that oxygen is required by the roots of plants; but practice also suggests that different plants require different quantities of that gas. This suggestion arises from the fact, that some genera, as the grasses and bulbous-rooted plants, require an open, light soil, easily penetrated by the air; whilst Beans, Clover, and other plants require a stiff soil less penetrable by the air.—(*Johnston's Lectures on Agricultural Chemistry.*)

The question may also be asked, whether the roots have the power to extract the oxygen from its combination. That they have this power admits of little doubt, since Saussure found that they were able to extract various saline bodies from their combinations; not only extracting, but selecting in those cases where several salts were in the same solution. Dr. Daubeny, the Oxford Professor of Agriculture, has also shown that strontian is rejected by Barley, Pelargoniums, and the winged Pea.

"In 1829, the seeds of various plants, such as the garden Radish (*Raphanus sativus*), the Cabbage (*Brassica oleracea*), the garden Bean (*Vicia Faba*), Hemp (*Cannabis sativa*), &c., were sown in soils containing various proportions of sulphate of strontian, with or without manure, and, amongst the rest, one in which no other ingredient except this earth was present in any quantity. The plants grew up; and when they had arrived at maturity were collected, burnt, and their ashes examined. No strontian, however, could be detected in any one of them; not even in that where the matrix consisted almost wholly of the earth in question. In 1831, the experiments were conducted with rather more attention to accuracy. One thousand one hundred and twenty-four grains of Scarlet Kidney Beans (*Phaseolus multiflorus*) were sown in a box containing about 290 lbs. of powdered sulphate of strontian, which has been ascertained to be free from alkaline matter, but to contain two per cent. of carbonate of lime, and about one-half per cent. of alumina. The box was placed in an open situation, exposed to sun and rain; and when the plants reared from these seeds had come to maturity, they were cut down and burnt. An account was then taken of the weight of the ashes remaining after the combustion had been completed, and of the fixed principles obtained from them; first, by lixiviation in water; secondly, by digestion in nitric acid; and, thirdly, by treating the remainder with an alkaline carbonate, and then again with the same acid as before. A similar process was gone through with the same quantity of the Kidney Beans as that of which the plants examined had been the produce.

It may be asked, whether the strontian is taken first into the system, and afterwards excreted from it, or whether the spongioles of the roots refuse it admission. The latter supposition seems the more probable one; since, if we adopt the former, we ought to be able always to find traces of the earth diffused throughout the vegetable tissue; and I may relate an experiment of my own, which seems to confirm it, undertaken after the plan of those by means of which the ingenious M. Macaire, of Geneva, established his important doctrine with respect to the excretory function discharged by the roots of plants. A small Pelargonium was taken out of its pot, and its roots divided into two nearly equal bundles; one of which had its extremities immersed in a glass containing a weak solution of nitrate of strontian, the other in one containing pure distilled water. After a week had elapsed, the water contained in the second glass was tested; but no strontian could be discovered in it, though a single grain in one pint of water would have been readily detected by my method. Hence it would seem that the strontian is not excreted by the roots. Yet this power of rejecting the earth in question, if possessed by the plant, must be held compatible with that of absorbing the water containing it, with which its roots are in contact. I took out of the ground a small Lilac (*Syringa vulgaris*), and introduced its roots into a glass globe containing

seven pints of a weak solution of nitrate of strontian. In about a fortnight the quantity was reduced to three pints—the remainder having, for the most part, been absorbed by the roots; for evaporation was prevented by covering the surface of the water with a stratum of Olive oil, and the mouth of the vessel with a cork. Unluckily, the original quantity of salt had not been estimated; but it was found that what remained in the water, at the close of the experiment, yielded 69.4 grains of sulphate of strontian, equivalent to 39.2 grains of the earth. The four pints of water, therefore, consumed, if they had passed through the organs of the vegetable charged with their original quantity of nitrate of strontian, would have carried into its circulation 22.4 grains of this earth; and, as the water was absorbed at the average rate of about four ounces and a half per diem, it follows that more than one grain and a half would have been carried daily through the substance of the plant, supposing the salt to have been taken up in the same ratio as the water. Now, on burning the plant, and examining its ashes, a trace of strontian certainly was detected; but its whole amount did not reach the one-fifth of a grain, that is, two per cent. of the whole quantity of earthy matter present; my analysis indicating, of lime 2.70 grains; strontian, 0.18; total quantity of earth, 7.48.

Upon the whole, then, I see nothing, so far as experiments have yet gone, to invalidate the conclusion, to which the preceding facts appear to lead, that the roots of plants do, to a certain extent at least, possess a power of selection; and that the earthy constituents, which form the basis of their solid parts, are determined, as to *quality*, by some primary law of nature, although their amount may depend upon the more or less abundant supply of the principles presented to them from without."—(*Edinburgh New Philosophical Journal.*)—J.

(To be continued.)

VARIETIES.

THE PALMETTO.—If Bermuda could boast of a few lofty hills, its beauty would be greatly improved; but it has no land that rises 250 feet above the level of the sea, though it has scarcely any level ground. The want of variety in vegetation is another disadvantage. The various coloured Oleanders—the pride of India, the now somewhat rare Palmetto, and still rarer Date tree, and a few other trees, occasionally relieve the otherwise-eternal Cedar. The Palmetto, however, is not a graceful tree. It bears, indeed, a very unsatisfactory resemblance to the beautiful Palm tree, and thus challenges in the mind a most unfortunate comparison. By the excellent materials, however, that it furnishes for bonnets, it is very useful; and if not ornamental in itself it is made so for the ladies. Every mail carries home, as presents, some portions of this fabric, as well as of a similar plait, made from some long grass, peculiar, I believe, to Bermuda. But the supply of the Palmetto plants is becoming quite unequal to the demand. It is now scarcely exported except as private presents. English ladies are gradually extinguishing this tree in Bermuda. Bishop Berkeley, in 1725, wrote, "Bermuda hats are worn by our ladies; they are made of a sort of matting, which is the only commodity that I can find exported from Bermuda to Great Britain." The Cedar, although handsome, is neither "the Cedar of Lebanon," nor "the lofty Cedar" of Shakspeare. It does not grow to any great size in Bermuda; which is, perhaps, owing to the great proximity of the sea on every side, and also to insufficient depth of soil. It has the appearance of a large dark Fir tree, and it abounds in nearly all the islands great and small.—(*Bermuda. By a Field-officer.*)

VEGETABLE PRODUCTS OF BERMDA.—The following articles are at present produced—many of them abundantly—from the Bermudian soil:—Arrowroot, Oats, Indian Corn (Indian Corn raised in Bermuda is said to be superior to that produced in the United States), Irish Potatoes, Onions, Tomatoes, Turnips, Sweet Potatoes, Carrots, Cabbages, Cauliflowers, Peas, Beans, Cucumbers, Lettuces, Radishes, Squashes, Beet-root, &c., &c. Amongst the fruits are Melons and Oranges. The latter do not flourish much at any time, and last year they were destroyed by a blight after a single proprietor had advertised 20,000 of them for sale. Grapes are scarce; but occasionally, in particular soils, very good. The West Indian fruits do not appear to thrive well in Bermuda. The Bananas at the latter are seldom worth eating. The Pomegranate, however, especially if mixed with ice water, is delicious in hot weather. The green Fig also is excellent. The Sugar Cane grows well in the neighbourhood of

the marshes; but want of capital and labour has prevented its cultivation to any considerable extent. It was never an article of export. The same remark applies to coffee, which is sometimes grown in small quantities as a curiosity, or for private consumption. The Bermudian soil, or rather climate, is very favourable to vegetable growth. Three crops may be seen growing at once in the same field; for instance, Potatoes, and between the rows Indian Corn, and here and there Pumpkins. Of vegetables, generally two crops can be raised in the same year; but of Potatoes even three crops can be obtained within the same period. Corn was once an article of export; but that was during the existence of slavery. Wheat grows well, and Barley admirably. The growth of a certain quantity of corn was once imperative, but the dearthness of labour in Bermuda, and the cheapness of American corn, have checked its production in the islands. The four principle articles of export are Arrowroot, Potatoes, Onions, and Tomatoes. The Arrowroot has for some time been famous as the best in the world: 147,636 lbs. of it were exported in 1855. But it appears to have fallen off a little, for in 1852, 233,145 lbs. were exported. Potatoes (Irish), of which 23,830 lbs. were exported in 1855, have increased wonderfully in a very short time. A most respectable and intelligent gentleman assured the author that he could recollect the time when a few barrels of Potatoes and 500 lbs. of Arrowroot were talked of as a great crop for an estate; 812,830 lbs. of Onions (also a great increase on 1852), and 7715 boxes of Tomatoes, were in the list of exports for 1855.—(*Ibid.*)

TO CORRESPONDENTS.

GREENHOUSE (*A. F. Watkin*).—Your inquiries were answered at p. 244 of No. 565.

DATURA CHLORANTHA FLORE-PLENO.—“*M. F.* would be much obliged to be informed where the seed of a new *Datura chlorantha flore-pleno*, from South Australia, producing sweet-scented flowers for seven or eight months, noticed in *THE COTTAGE GARDENER* of 19th ult., can be obtained; and if the present time is suitable for sowing it to flower early next season.”

ORANGE THYME.—“My employer tells me he some years ago, in Covent Garden Market, bought some plants of a Thyme called the Orange, resembling the Seville Orange in smell, the plant resembling the Lemon Thyme. Can you give me any information respecting it through *THE COTTAGE GARDENER*?”—*R. E.*

[Do any of our readers know this Thyme? Is it not the variety known as “Lemon Thyme,” and by botanists called *Thymus serpyllum cilvatus* ?]

SCOLYTUS DESTRUCTOR—FARRIER’S HORSE-DROPPINGS (*Sarah C. M.*).—The Elm bark you have sent from Chislehurst is perforated by this pest and its grubs. The horse-droppings from a farrier’s, though mixed with iron scales thrown off during forging processes, is quite available for a Mushroom-bed.

LEAD PENCILS (*P. Houghton & Co.*).—We have had some pencils sent us by this Company, and put them into the hands of practical gardeners. One reports thus:—“The pencil you gave me to try how I like, is decidedly a very good one, the lead does not break, as is the case with what we often buy at the shops; therefore, it is excellent for writing on labels and for other garden purposes. But for the carpenter, and other mechanics, I should say it was extremely well adapted, and excellent for their eyes to see and their hands to handle.” Others all write in a similar strain; and we give, as the result of our experience, that the pencil writes freely on deal labels painted or unpainted, and is very strong and black.

NAMES OF PLANTS (*H. A.*).—These specimens came to hand very much injured, which would not be the case were they simply folded singly between bits of damped blotting-paper. No tying is required. 1. Appears to be the *Justicia nasuta*. 2. Not certain. 3. *Gazania uniflora*. (*John Marchington*).—1. *Aselepias tuberosa*. 2. *Sedum Seiboldii*. (*Minie M.—Surrey*).—The two small leaves are from a little aquatic plant, called *Limosella aquatica*, common Mudwort. The flower, as near as we can make out from such a bit, without even a leaf with it, is the *Lobelia erinus*.

POULTRY AND BEE-KEEPER’S CHRONICLE.

POULTRY SHOWS.

AUGUST 19th and 20th. BRADFORD. *Secs.*, Mr. A. Hardy, Bowling Old Lane, Bradford, and Mr. E. Blackbrough, Black Bull Inn, Ive Gate, Bradford. Entries close August 12th.

AUGUST 23rd and 24th. WHITBY. *Sec.*, S. Burn, Esq., 1, East Terrace, Whitby. Entries close August 13th.

AUGUST 25th, 26th, and 27th. MACCLESFIELD. *Sec.*, Mr. W. Roe. Entries close August 10th.

AUGUST 27th. HALIFAX. *Sec.*, William Irvine, Holmfild, Ovenden, near Halifax.

ACQUOT 29th, 30th, 31st, and SEPTEMBER 1st. CRYSTAL PALACE. Poultry, Pigeons, and Rabbits. *Sec.*, William Houghton. Entries close Saturday, July 30th.

SEPTEMBER 22nd. BRIDGORTH. *Sec.*, Richard Taylor, Bridgorth.

OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. *Sec.*, Geo. Griffiths 7, St. Swithin Street, Worcester.

NOVEMBER 28th, 29th, and 30th, and DECEMBER 1st. BIRMINGHAM. *Sec.*, Mr. J. Morgan, Bingley Hall, Birmingham.

N.B.—Secretaries will oblige us by sending early copies of their lists.

MANAGING WITH LIMITED CONVENIENCES.

As it is part of our duty to anticipate wants and queries, and to justify our name of the POULTRY CHRONICLE, we go on from where we left off last week, and take it for granted that our advice has been taken, and our plans carried out. We have catered long enough for the poultry public to be aware that we should constantly guard against general terms, and should avoid that snare to all who write on one subject,—viz., taking for granted that our readers will catch our meaning conveyed in few words, as readily as we ourselves understand it.

It may be, that some may ask what we mean by giving every advantage to the best chickens, or what we should consider a fitting pen for the reception of those that are to be confined for a time. “It is very easy,” says a fair correspondent, “to give instructions; but too often they infer inconveniences those who live in small houses do not possess. It is easy to give these instructions to those who have farms and cottages, or who have lodge gates for different runs.”

We will make it easy for our fair friend who writes with just a spice of dissatisfaction at our last paper. We will endeavour to make ourselves plain, and promise her success in return for a little painstaking. We will suppose you have but one walk. Let all the chickens, cockerels and pullets, run together, provided they are all good. Hens may run with them, but not cocks, if they interfere with the young ones. The latter have still growth to make, and confidence to acquire; these are impossible if they are beaten by the old birds; and we do not know whether it is not well to confine all the old birds, to give the chickens as much range as possible, and also to allow them to be fed daintily.

The place in which the old birds should, or may be confined, must depend on convenience, and on the breed. Coehins, Brahmas, and Spanish will do anywhere, provided they have a clean, roomy roosting place, large enough to allow them to sit on perches without touching each other, and lofty enough to admit of ventilation without draught on the birds. If for ten or twelve fowls, say seven feet square, and eight feet high. Nothing is better than an old wood-house, or a shed. If a run can be given to them in front, with grass, so much the better. If it cannot, close the entrance with any old netting, and let the door remain open. Have some large sods of grass cut every day, and throw them in; the fowls will do well if in a shed or wood-house, not in a small roosting place, such as we have described. We do not consider a poultry-yard perfect without some wooden frames on which wire netting can be stretched, and five of these form a temporary pen at any time. A cheap and very useful thing is a wattled erib, made round, about four feet in diameter, and four feet high. It has two holes left in the work, through which a perch is put at night. It has no bottom, and, therefore, stands on grass, or wherever it is convenient to place it. It is covered with a hurdle thatched with sufficient straw to keep out rain. In such as these we have kept a cock and two hens for months in perfect condition and feather; and as they can, and ought to be, moved every day, they do not disfigure any place. Such will do for old birds or any that require to be confined.

PRIZES FOR BANTAMS.

PRAY allow me space in your influential paper to remonstrate with the Secretary and Committee of the Worcester Poultry Show, against making Bantams an exception to their general rule of “all birds must have been hatched in 1859.”

What chance of winning prizes have the exhibitors of Bantams of 1859 against Bantams of “any age?”

Why should Bantams be excepted from a “Chicken” Show? Surely it is as easy to rear Bantams in time for an autumn Show as any other variety of poultry.

Is not the class of Game Bantams well filled at the Crystal Palace Show, though it is held at a much earlier season of the year than “the Worcester?”

But if the Committee insist upon excepting them, they should at least add a *third prize* in such a favourite and well-supported class as “Game Bantams.”

They pay the same entrance fees as larger fowls,—they cost much less in food and care to the Exhibition,—yet they are always allotted smaller and fewer prizes than the majority of other classes!

I trust the numerous "Game Bantam" amateurs will join in trying to obtain "justice to Bantams" in the prize lists of 1860. More prizes, or smaller entrance fees, would meet the demands of—FAIR PLAY.

ORMSKIRK AND SOUTHPORT POULTRY SHOW.

THE third annual Exhibition of this Society took place at Ormskirk on the 10th inst.

This Show was remarkably good, and in many cases the competition was very severe. A pen of *Cochin-Chinas*, exhibited by Mr. Harvey, of Sheffield, were bought by a gentleman from Oswestry for the sum of £10 10s.; and a *Black-breasted Game* cock and two pullets, exhibited by Mr. S. Butler, of Poulton-le-Fylde, were purchased by Mr. J. T. Pike, of Maghull, at the exhibitor's own price—£3 3s.

The whole of the arrangements for the Show were conducted under the able superintendence of Mr. Musgrove.

DORKINGS.—First and Second, Captain Hornby, R.N., Knowsley Cottage, Prescott. Commended, Sir T. G. Hesketh, Bart., Rufford Hall.

SPANISH.—First, J. Garlick, Hygea Street, Everton. Second, J. Astles, Warrington.

GAME (Black-breasted Red).—First, G. Love, Rufford Hall. Second, J. Forshaw, Wimbrick House, Aughton. Silver medal, G. W. Moss, the Beach, Aigburth.

ANY OTHER KIND.—First, J. Brown, Preston. Second, G. Love, Rufford Hall.

HAMBURGH (Golden-pencilled).—First, W. Harvey, Sheffield. Second, W. C. Worrall, Liverpool. Highly Commended, T. Robinson, Ulverston.

HAMBURGH (Silver-pencilled).—Prize, G. Griffiths, Worcester.

HAMBURGH (Golden-spangled).—First, S. H. Hyde, Moss Cottage, Ashton-under-Lyne. Second, G. Love, Rufford Hall.

HAMBURGH (Silver-spangled).—First, T. Burnett, Hutton, near Preston. Second, G. Hardman, Rawtenstall.

COCHIN-CHINA (Buff).—First, H. Tomlinson, Balsall-heath Road, Birmingham. Second, E. Musgrove, West Bank, Aughton. Highly Commended, T. Stretch, Marsh Lane, Bootle (two pens); W. Copple, Eccleston, near Prescott.

COCHIN-CHINA (Partridge or Grouse).—First, T. Stretch, Marsh Lane, Bootle. Second, E. Musgrove, West Bank, Aughton. Silver medal, W. Copple, Eccleston, near Prescott.

POLAND (any colour).—Prize, J. Norris, Burscough.

BANTAMS, GAME (any colour).—First, H. Worrall, West Derby. Second, I. Thornton, Heckmondwike, Yorkshire. Commended, W. Evans, Hurst House, Prescott.

BANTAMS (Gold or Silver).—Prize, H. Worrall, West Derby.

GRESE.—First, J. Bryers, Ormskirk. Second, J. K. Fowler, Prebendal Farm, Aylesbury. Highly Commended, Captain Hornby, R.N., Knowsley Cottage, near Prescott.

DUCKS (Aylesbury).—First, J. K. Fowler, Prebendal Farm, Aylesbury. Second, T. Burnett, Hutton, near Preston.

DUCKS (Rouen).—First, J. K. Fowler, Prebendal Farm, Aylesbury. Second, W. Evans, Hurst House, Prescott.

TURKEYS.—First, Sir T. G. Hesketh, Bart., Rufford Hall. Second, Capt. Hornby, R.N., Knowsley Cottage, near Prescott.

YOUNG POULTRY.

GOSLINGS.—First, T. Burnett, Hutton, near Preston. Second, Mrs. M. Seamonds, Hartwell, Bucks. Highly Commended, Captain Hornby, R.N., Knowsley Cottage, Prescott.

DUCKLINGS.—First, Mrs. M. Seamonds, Hartwell, Bucks. Second, W. Evans, Hurst House, Prescott. Highly Commended, Mrs. M. Seamonds, Hartwell, Bucks; J. K. Fowler, Prebendal Farm, Aylesbury.

DORKINGS.—First, W. Evans, Hurst House, Prescott. Second, Captain Hornby, R.N., Knowsley Cottage, near Prescott. Commended, P. Guy, Lathom.

SPANISH.—First, T. Robinson, Ulverston. Second, S. H. Hyde, Moss Cottage, Ashton-under-Lyne. Commended, J. K. Fowler, Prebendal Farm, Aylesbury.

GAME (Black-breasted Red).—First, J. S. Butler, Poulton-le-Fylde. Second, T. Durning, Rainford.

GAME (any colour).—First, G. Love, Rufford Hall. Second, J. Forshaw, Wimbrick House, Aughton. Silver medal, H. Worrall, West Derby.

COCHIN-CHINA (Buff).—First, T. Stretch, Marsh Lane, Bootle. Second, W. Harvey, Sheffield. Highly Commended, E. Musgrove, West Bank, Aughton (two pens); T. Stretch, Marsh Lane, Bootle.

COCHIN-CHINA (Partridge or Grouse).—First, E. Musgrove, West Bank, Aughton. Second, T. Stretch, Marsh Lane, Bootle. Highly Commended,

J. K. Fowler, Prebendal Farm, Aylesbury; T. Stretch, Marsh Lane, Bootle.

HAMBURGH (Golden-pencilled).—First, J. K. Fowler, Prebendal Farm, Aylesbury. Second, T. Robinson, Ulverston. Highly Commended, Messrs. Carter and Valiant, Poulton-le-Fylde.

HAMBURGH (Silver-pencilled).—Prize, J. and W. Holland, Sansome Walk, Worcester.

HAMBURGH (Golden or Silver-spangled).—Prize, W. Harvey, Sheffield.

BEST GAME COCK (any colour).—Silver Cup, G. W. Moss, the Beach, Aigburth. Highly Commended, Captain Hornby, R.N., Knowsley Cottage, Prescott.

The Judges were Mr. Hindson, of Liverpool; and Mr. Teebay, of Preston.

STRAIGHTENING A DROOPING COMB.

CONTINUING INFLUENCE OF MALE BIRD—DORKINGS IN CONFINED SPACE.

"IN an answer to some correspondent last week, I see you direct him to fasten up the drooping comb of a Spanish cock with silver wire. I have a Dorking cockerel of great beauty, whose comb, unfortunately, inclines to a droop. The same remedy is, doubtless, applicable to his case as well as to the Spaniard; but I cannot see how the wire is to be attached, or what it is to be fixed to. If it is passed through the upper part of the comb, and then round the throat of the bird, he will infallibly scratch and tear the wire off, and thus injure his comb. Perhaps you could give me some directions on the subject.

"2. Supposing a dark hen has received the addresses of a light coloured cock for some time, and is then removed to a yard where her companion is of her own colour—viz., a dark-breasted Red—will her chicks by this latter bird be affected in colour through her connection with the light cock some weeks before? In fact, will she breed as true to colour as if she had been always with the dark cock?

"3. Can Dorkings be bred and kept well in a yard twenty-eight yards by twenty-three, half in gravel half in grass?"—REV. E. C.

[The wire should go through the thick bottom of the comb. This is a better fastening than round the throat, although the latter is sometimes done. It is always the back of the comb that falls over, and this is the lightest part of it, consequently the easiest to support. The wire should go through the thickest part of the comb between the eyes and the beak, and go backwards between the hinder serrations.

2. If the hen were laying, or about to lay, when she was with the light coloured cock, the probability is the chickens will take after him, in spite of any change made afterwards. If she did not lay till some time after she was mated to her own colour, we should expect the produce to be true.

3. A walk of Dorkings, two cocks and eight hens, can be kept very well in the space you name. We should not advise you to put more than that number. Let them have a heap of ashes and dust, and in very dry weather let some pails full of water be frequently thrown on the grass. It prevents taint.]

THIS YEAR'S HATCHING SEASON.

IN March fourteen Dorking eggs were set, thirteen chicks hatched, all lived to grow up. Thirteen Cochin eggs were set in the same month, eleven chicks hatched, all lived to grow up except one which was blind, and, therefore, obliged to be killed. Thirteen Dorking eggs were set in the same month, twelve chicks hatched, all lived to grow up. In April fourteen Dorking eggs were set, ten chicks hatched. The result of this brood not known as it was given away. I have found this a very good year for chickens, and very unfavourable for Ducks.—A. B., Painswick, Gloucestershire.

HOW TO TELL BAD EGGS.—The true way to tell bad eggs is to put them in a pail of water, and if good they will lie on their sides always; if bad, they will stand on their small ends, the large end always uppermost, unless they are shaken considerably, when they will stand either end up. Therefore, a bad egg can be told by the way it rests in water—always end up, never on its side. An egg that lies flat is good to eat, and can be depended on.—(T. C.)

BEE-KEEPING IN DEVON.—No. X.

EXOTIC BEES—STINGLESS—LIGURIAN—A “CASSETTE”—ITS CONTENTS—DRIVING—THE QUEEN WILL NOT STING—ATTEMPTED UNION—A BATTLE.

It is probable that many bee-keeping enthusiasts may be disposed to sympathise with me in the interest with which I have always perused the chapter which, in most apian works, is devoted to the consideration of “exotic bees.” Often have I lingered over the description of the “little black bees without stings,” said to be natives of every tropical climate, and devoutly have I wished myself able to procure a hive of these fascinating insects. Nor have my desires in this respect been damped by the intimation that these stingless strangers must soon fall a prey to the wasps and bees of this country; since, if it is true that they are only half the size of European bees, there could be no difficulty in devising such an entrance to their hive as would effectually exclude marauders.

Some years since a paragraph went the round of the newspapers to the effect that a colony of these liliputians had accidentally been brought to this country in a hollow log of (I think) mahogany. Although many of these little strangers were dead, it was stated that sufficient remained to set vigorously to work; and I was in hopes that this accidental circumstance might result in the naturalisation in this country of a kind of bee that would most certainly have become a universal favourite.

Unfortunately the whole affair appears to have died off; for, from that time to this, I believe nothing more has been heard of it. The chapter in the “Naturalists’ Library,” in which Dr. Dunbar describes the *Apis Ligustica* of Spinola, *A. ligurienne* of Latreille, as being cultivated with success in Italy, has, however, more often arrested my attention; and frequently have I cogitated over many possible and impossible schemes for obtaining possession of a hive of what I inferred from their name to be the apian natives of ancient Liguria.

All these schemes and aspirations had, however, lain many years dormant, when they were again roused into the fullest activity by the perusal of a letter in THE COTTAGE GARDENER of the 19th of July, on the subject of “Exotic Honey Bees.” Here, then, was at last the chance I had so ardently longed for. Here were bees of the “yellow Ligurish race” almost within my grasp. It is needless to recount the inquiries I set on foot, or the anticipations in which I indulged, of realising a dream which for so many years had had no better foundation than the “baseless fabric of a vision.” Suffice it to say, that on the 3rd instant I found myself the fortunate possessor of a small rough-looking deal box pierced with numerous holes, and bearing indisputable evidence of having travelled both in Germany and France, in the shape of printed tickets in both languages pasted on its surface.

On applying this little box to my ear, the hum of bees afforded presumptive evidence of the truth of the statement contained in a letter which had preceded it, that the “little cassette” contained “a yellow Ligurish queen, and 1000 bees.” Having removed the box cover, I cautiously substituted a pane of glass, through which I peered into the interior in the hope of obtaining a sight of her “Ligurish” majesty. There were certainly a great many bees, but whether so many as a thousand I had no means of determining. The great majority differed in no respect from our common English bees, but some there were conspicuous by a broad reddish-brown band on the first ring of the abdomen, and generally lighter in appearance than the others. These, then, were of the “yellow Ligurish race,” and there probably was their queen; but with all my endeavours I could not succeed in distinguishing her.

The admission of light created great excitement among the little captives, and the pane of glass became so hot that I was fain to lose no time in affording them more liberty. I had previously prepared an eight-bar hive for their reception, by fitting it up with five combs, four containing honey and pollen, and the fifth completely empty. Having placed the box over the hole in the top of the hive, I withdrew the pane of glass, thus affording them free access to the interior; and all exit therefrom being barred by perforated zinc, I removed the whole to a dark cellar for the night.

Next morning I proceeded to act upon the instructions I had received, to “give the queen some people from an English bee-hive, the best from one who has no queen.” In order to the attainment of this end, I was instructed to “take a English bee-hive from his place, and bring on his place the Ligurish queen

with her people.” I, therefore, set the hive with the foreign bees on the site previously occupied by a unicombe hive, from which I had removed the queen about a month ago, and which had failed to raise another. Many of the bees working from the unicombe returned to the accustomed spot, and joined the foreigners, but this result was not obtained without some fighting and loss of life. As the morning wore on, the bees in the unicombe hive appeared to suspect the trick, and entirely ceased working, so that it became evident that some more decisive measures must be resorted to in order to secure the requisite population.

Having anticipated some such result, I had obtained leave to drive the bees of a condemned hive about a mile and a half off; and this I now lost no time in doing. I was informed that this hive contained a swarm from a first swarm of this year, and presuming its population to be scanty, I expected little difficulty in uniting. On lifting the hive (a straw one) from its stand, I was surprised at its weight (34½ lbs.); and having inverted it in a bucket, I found there was no lack of population. Ten minutes’ rapping drove the bulk of the bees into an empty hive; and, throwing off my bee-dress and gloves, I proceeded to shake them off in four clusters on cloths spread on the ground. A brief search amongst the last cluster resulted in the discovery of the queen. Having omitted to provide myself with any means of securing her, I caught her between my finger and thumb and ran off with her into the house, where I deposited her under a wine-glass, and ultimately introduced her into my queenless unicombe hive. No stronger proof could be given of the disinclination of the queen bee to use its sting than was afforded by her patiently submitting to the rough treatment to which she was subjected, by being carried through the length of a large garden pinched between my bare thumb and fore finger.

About nine o’clock in the evening these queenless and expatriated bees were conveyed to my house; and having been knocked out upon a cloth, were speedily surmounted by the hive containing the foreigners, which was slightly raised on two sticks. Contrary to my experience, the noise which followed the fall of the cluster increased instead of diminishing during the next hour, and by ten o’clock the uproar was tremendous. Instead of the amicable union which I had contemplated, a furious battle was raging.—A DEVONSHIRE BEE-KEEPER.

THE ROSE-LEAF-CUTTER BEE.

THIS is one of our wild species of bees which live and build their nests in pairs. They do not secrete wax to form their cells, but construct them curiously of bits of rose-leaves; and this gives rise to the insect’s name. Rose-growers have much reason to complain of them for cutting round holes with their strong mandibles in the green leaves and bushes. The bees often carry the little pieces in their mouths into the locks of doors which are seldom used, to be formed into rows of cells curiously fitted together like small thimbles. Each of them contains an egg or grub, with a little pollen for food. This is not collected on the thighs of the insects in round balls, but is deposited among the strong hairs under their abdomens. Their manner of collecting pollen seems to be a sort of jerking movement when they have made their way into the hearts of flowers.

While on the subject of pollen, I may note that “B. & W.” finds fault with my statement that “bees never collect pollen alone, though, of course, they do honey;” and because I observed that the curious way in which bees collect pollen was little known, he calls this reckless writing. What I said is nevertheless true; and I question if he can point out any other writer who has done it more clearly from Reaumur to those of our day.

I have to notice that the brood, or chrysalis, of the Rose-leaf-cutter Bee seem to pass the winter in rose-leaf cells; but, luckily for the gardener, many of them are destroyed while in the larva state by the grubs of a small ichneumon fly, which slowly devour them, and afterwards occupy their chrysalis in the cells until spring. I mentioned this some years back in another publication; and may here observe that the Rev. Mr. Duncan, whose entomological knowledge is beyond doubt, was the first to call my attention to that small devouring enemy of the Rose-leaf Bee. This bears some resemblance both in colour and size to the hive bee; but, like others of the tribe, stores up no honey. I may observe that I never found more than one row of four to eight cells in their nests; and it is rather remarkable how the larva can live in them, for they seem to be almost air-tight.—J. WIGTON.

DEATH TO THE TRESPASSER.

I WILL narrate a circumstance taking place in the neighbourhood of my own residence, that, unseen, I myself could barely have accredited, in which the sagacity displayed was most certainly of very unusual character, and which far exceeded anything to my knowledge detailed by previous writers.

Under the gable of a far-projecting roof the common House Marten had annually produced one or more broods of young ones for many years past. The present spring seems to have retarded their accustomed arrangements, however; and, prior to the arrival of the Martens, a pair of Sparrows had relined with feathers, and similar soft materials, the time-used occupancy of the Martens, and, in satisfaction for the labour thus applied, had evidently claimed it as their own.

Possession thus obtained, the Sparrows soon made themselves unusually comfortable, and enjoyed the prior exertions of the as-yet-absent owners; but when incubation was proceeding, the summer visitants came suddenly to re-adjust and repair (as customary every spring) their former tenancy. Their dismay seemed heartbreaking. For a day or so the pair of old Martens sat forlornly reviewing their eviction, and from the roof occasionally made unsuccessful sallies from the roof to dispossess the present occupants. These were manifestly worse than futile, for the Sparrow seemed always on the alert, and to obtain an entrance to the nest was impracticable; for, at many of the skirmishes, the Martens seemed almost denuded of their neck and breast-feathers, and were reluctantly compelled to beat a retreat to escape further personal ill-treatment, whilst the male Sparrow contented himself by sitting on a distant chimney-pot, threatening and noisily complaining of the attacks on his better-half, but, singularly enough, never personally venturing actual collision.

Thus matters stood for some forty-eight hours, when the dispossessed ones voluntarily absented themselves altogether, and I considered the Sparrows had actually realised the advantages of the legal "nine points," so customarily admitted as consequent on possession. I was, however, judging wrongly. Early one morning, when the Sparrow was near hatching, came a whole cohort of Martens, more in number than collectively I ever previously witnessed; and these flights, after a most cautious survey of how matters stood, covered the whole ridge-tile as closely as it was possible for the birds to sit together. My curiosity was enlisted simply from the conjecture of "how" so numerous a body could have been so rapidly collected, and anxiously I waited the issue. The twitterings were incessant, yet for half an hour or more I firmly believe not one bird moved its position.

Among this conclave none seemed more petulant and exhortive than one of the original Martens, whose sudden dispossession I have detailed. Its identity was indisputable, from the fact of two or three flight-feathers having been forcibly abstracted in previous encounters with the Sparrows. After working up their fury to the utmost, the Martens simultaneously flew to a wet roadway in the neighbourhood; each bird taking up a mouthful of mud, and then flying as rapidly as wings could do back to the nest—thus affixing its atom on the only means of entrance. At first the hen sparrow seemed fully aware of their intentions, and fought with an obstinacy a struggle for personal existence could alone inspire. Whenever the opening was partially filled up, she demolished wholesale the fresh erection. Constant exertion, however, against combined hundreds, without even a moment's cessation, evidently began to tell on even her vigorous frame: her efforts became weaker and weaker, and finally she was a victim to premature interment. As the scene closed on her, so much more was the energy of the Martens increased; the frantic twitterings of those leaving the nest, after the safe deposition of their loads, to those "still coming" were excessive. Yet, very strange to say, directly their intention was accomplished by the Sparrow's being "built in," they all took again a position on the ridge-tile—most of them, however, now evidently lapsing into a state of semi-somnolency.

The night drew on, and the generality of the birds began to take the flights to which all this family are addicted when feeding; but their noisiness had ceased; they were now only intent on sustenance. Whilst they were, on the contrary, previously engaged as just described they never deviated their flights for even a moment.

So far, perhaps, the detail has been in coincidence with the experience of many other observers—"revenge being satisfied, but no actual good attained," save the death of the intruder; but

how the actions of the Martens closely approximate to reason and reflection! After sundry twitterings, although by no means so noisy as heretofore, a strong body of the Martens commenced to scratch down their self-appointed task of yesterday. Their assiduity was remarkable; they were constantly relieved by each other, and at length succeeded: of course the entombed Sparrow being hours back dead from suffocation.

An entrance once obtained, some twelve or more of them, after tugging lustily and incessantly at the defunct, with the loudest acclamations, at length drew her from the nest, and actually carried her several yards, but, overburdened, they let fall the Sparrow; and in a few moments afterwards, the eggs, six in number, were similarly disposed of, each containing a nearly-matured Sparrow.

In but little more than an hour after the destruction just named, quite contrary to my anticipations, scarcely a single Marten could be seen save the rightful owners, and these latter appeared to realise to the utmost the comforts consequent on so hardly-won a home. Thus, to any person who did not witness this previous fray, these pair of birds seemed quite alone, and friendless altogether. During the noise and uproar which attended the exhumation of his mate, the male Sparrow never once appeared; nor did he even, as on the preceding day, rate them from a distance.

The re-opening of the nest subsequent to the death of the Sparrow appears to my mind a new feature in such matters. The mere building-in of trespassers has been frequently recorded; still in all prior cases that have come to my knowledge the intruder thus summarily punished has been left hermetically sealed up in its prison-house, no after-attempt being made by the rightful owners at re-occupancy.

The old pair of Martens still appear happy and contented in the full enjoyment of their dearly-bought habitation; and my sole object in bringing it before the readers of THE COTTAGE GARDENER is to elicit whether the ejection of the body of the suffocated trespasser, and final re-occupation immediately afterwards of the same nest, have been before witnessed in disputes of this character.—EDWARD HEWITT, *Spark Brook, Birmingham.*

OUR LETTER BOX.

YOUNG TURKEYS DISEASED (*A Poultry Fancier in N. Northamptonshire*).—They have the roup. Treat them as directed to-day for the white Peacock, and, in addition, give each daily half a grain of powdered sulphate of copper, mixed thoroughly in some moist food.

ROUP IN WHITE PEACOCK.—"I have a white Peacock which a week since began to sneeze and shake its head now and then, but now it scarcely ever ceases to do so. If you would inform me of any thing that will cure it, I shall feel very much obliged."—AN ANXIOUS WRITER.

[Your Peacock has incipient roup. Pea-fowls are subject to it, but seldom die of it. Give him a table-spoonful and a half of castor oil every day. Wash his nostrils well with cold vinegar and water. Feed him with oatmeal, and mix some salt with it. Give him also bread steeped in strong beer. If he lose condition so much that his tail drags on the ground, cut it off, as the weight will wear him out. His nostrils should be washed two or three times per day, till the sneezing is diminished.]

PONTEFRAC POUSTRY SHOW.—The First and Second prizes for *Brahma Pootras* were omitted in the list of prizes. Both pens were light coloured. First-prize pen nine months, other adults, and belonged to L. J. Brook, J.P., Gilly Gate, Pontefract.

LOST LETTER (*J. R. Huntley*).—We have no recollection of receiving a letter with this signature; but if we had, and the Editors thought it not of sufficient interest for publication, they would not do their duty if they did not reject it.

SPECIMENS OF BEES (*A Devonshire Bee-keeper*).—Your two honey bees are certainly of the same species, *A. mellifica*. Spinoia expressly says, of the workers of his *A. ligustica*, that the three basal segments of the abdomen are brick-red at the base, with the hind margins black, fringed with red hairs, the remaining segments black, with similar marginal hairs. —(*Ins. Lig.*, 1, 36.)

LONDON MARKETS.—AUGUST 15.

POULTRY.

The trade is almost nominal, but the supply is as it has been all the season, very small. Grouse, from the English moors, have come in well; but the prices realised during the first two days are so ridiculous, we abstain from any quotation.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls.....	4	0 to 4	6	Turkeys	0 0 to 0 0
Smaller ditto.....	3	0 ,, 3	6	Pigeons	0 8 ,, 0 9
Chickens	2	0 ,, 2	6	Guinea Fowls	0 0 ,, 0 0
Geese	6	0 ,, 6	6	Rabbits	1 4 ,, 1 5
Ducks	2	6 ,, 3	0	Wild ditto	0 8 ,, 0 9

WEEKLY CALENDAR.

Day of M th	Day of Week.	AUGUST 23—29, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bcf. Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
23	Tu	Roellia spicata.	30.075—30.018	75—41	E.	—	59 af 4	6 af 7	18 11	25	2 33	235
24	W	St. Bartholomew.	30.133—30.049	75—53	N.E.	—	v	4 7	morn.	26	2 17	236
25	Th	Bœckia tennifolia.	30.017—29.974	72—41	W.	—	2 5	2 7	38 0	27	2 1	237
26	F	PRINCE CONSORT BORN, 1819.	30.085—29.993	69—44	N.	—	4 5	0 7	10 2	28	1 45	238
27	S	Bourchard umbellata.	29.914—29.834	65—41	N.W.	—	5 5	vi	44 3	29	1 28	239
28	SUN	10 SUNDAY AFTER TRINITY.	29.770—29.747	67—35	S.	—	7 5	55 6	sets.	30	1 11	240
29	M	Polianthes tuberosa.	29.791—29.692	67—47	S.W.	.16	9 5	53 6	4 a 7	1	0 54	241

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 74.7° and 52.8°, respectively. The greatest heat, 92°, occurred on the 25th, in 1857; and the lowest cold, 36°, on the 28th, in 1836. During the period 139 days were fine, and on 85 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

THE plants in these houses should receive particular attention that they do not suffer from want of water or fresh potting; the water to be given in the morning or forenoon, that the plants and houses may be dry towards night, to prevent the ill effects arising from damps.

CAMELLIAS.—Look over them, and disbud where too many are set in a cluster. Resurface the soil, and see that the drainage is efficient.

NEW HOLLAND PLANTS.—Heaths and other such hard-wooded plants that have been placed out of doors will now do best in a cold pit or frame, where they can be protected from heavy rains.

PELARGONIUMS.—When the shoots of the plants that have been cut down are about an inch long, the old soil must be shaken away, the roots slightly trimmed, and then repotted into small pots, &c., as advised early in July. Some of the cuttings may now be fit for potting off; when potted, to be placed in a pit or frame, kept close, and shaded until they have made fresh roots, when they should be placed out in an open situation to grow firm and stocky, pinching out the leading shoots; and to be placed on coal ashes, slates, or boards, to prevent the admission of worms. Sow the seed immediately it is gathered, and also that of Fuchsias, or of any other perennial plant, if ripe before the middle of September.

STOVE AND ORCHID-HOUSE.

The stove plants of strong and early growth may be allowed a gradual increase of ventilation and more sunlight. Plenty of moisture is still essential for the general stock. Shading may now be dispensed with, except during bright sunbursts. Careful attention to be given to the Allamandas, Echites, Euphorbias, Læulias, Stephanotis, Dipladenias, and other such valuable stove plants. The surface soil of large specimens to be stirred, and weeds and moss removed.

GESNERA ZEBRINA.—Shift them for winter flowering; they delight in a mixture composed of equal parts of fibrous loam, heath soil, and leaf mould. All plants after shifting do best when placed in a gentle bottom heat; to be syringed occasionally, and shaded during bright sunshine.

Shift on all ORCHIDS that now require it, and are making their growth. Top dress others, if they require it. All that are growing freely in pots or baskets, or on blocks, to be syringed with clear, tepid, soft water in the afternoons of fine days, and to be shut up early.

FORCING-HOUSES.

FIGS.—If any are growing against the back wall of a vinery, or other such structure, it may be advisable to give them a good soaking of water, and but very little, if any, after—as a dry atmosphere is necessary to ripen the fruit.

MELONS.—Continue to supply them with bottom heat. If they are growing in pits or frames, keep the linings No. 569.—VOL. XXII. No. 21.

well topped up or renewed, to produce a comfortable heat inside; for without it canker is apt to set in and destroy the plants.

MUSHROOMS.—In making beds for these on shelves, or in boxes, as recommended a fortnight ago, or on the floor, let the whole mass be made very firm by well-beating it as it is put on in layers. It is advisable when the spawn is put in to cover it with good, strong, fresh loam at least from two to three inches thick, and to make it as firm as possible. The Mushrooms will come stronger and of much better quality than if partly-exhausted soil is used.

PINES.—If the winter fruit have finished blossoming, supply them occasionally with clear liquid manure when they want water. The growth of the crown to be checked, and all useless suckers, gills, &c., to be removed. When a house or pit is devoted to late Pines alone, an abundance of moisture should be supplied. Give abundance of air to the young stock in dungpits, and increase the dryness of the atmosphere, to induce maturity of growth and a hardy constitution against winter. Shift, if not already done, succession plants into larger pots. Any plants recently potted to be shaded during bright sunshine, sprinkled overhead every afternoon, and the house closed early. The sprinkling will be sufficient without watering at the root until the plants begin to grow.

VINERIES.—Continue to secure a dry state of the atmosphere when the ripe fruit is intended to hang for any length of time, using a little fire heat when necessary to dispel damp. To ripen the fruit in late vineries, it is frequently necessary to use fire heat, but more especially when the external temperature ranges below 50°.

WILLIAM KEANE.

BULBS AND BEDDING PLANTS.

TRITOMA UVARIA.

Hyacinthus Indicus flowers in August. The flowers are "composed of six white leaves, spread open like those of a Daffodil, and of so strong a sweet scent, that a pot of them set in a lower room, the doors open, it will be smelt all the house over." What could this be two hundred years back? and have we got such a thing in our day? Yes: and I once saw a bed of it in full bloom, and only once. It was at Dropmore, in 1831, in Mr. Bailey's time, and it was one month earlier than is set down by the best of the very old writers on gardening,—honest Samuel Gilbert. "The great Indian tuberose Hyacinth," of his day, is the Italian *Tuberosus*, at four shillings per dozen, of our nursery catalogues, and the *Polyanthus tuberosa* of botany. "It was the best and most desired of all its kind," in 1659, or after being under English cultivation for about twenty years. But there is one point in the cultivation of *Tuberosa*, from which it is as hard to drive English and Scotch gardeners as from their native puddings; and by adherence to that point they and their fathers have well nigh deprived us of all "the Lilies of the field." That point is to water "every mortal thing" as soon as it is potted, and to double and

treble the heat that is at first most conducive to the fair starting of a bulb or tuber. Let a British gardener but put any bulb or tuber in a pot, or box, and that is a sufficient reason for him to water it; which is more than enough to explain why we, in August, at any rate, do not have our yearly bed of *Tuberosa* as they used to have them two hundred years back.

The sum of the way they got them into bloom is to have the tubers potted in April, using the very richest compost below the tubers in the pots, but fresh earth round and over them as we use sand, the top soil being "rank," the same as the bottom; to plunge the pots in a hotbed, and not to water them till they were "grass high." The hotbeds of that time had no straw or litter—nothing but sheer horse-droppings, gathered as carefully as we do for Mushroom-beds, "and thrown up in one corner of the stable till you have a quantity sufficient for the length and bigness of your bed." The sides and ends of these beds were "wattled," two feet of "wet dung and litter" in the bottom, one foot of the horse-droppings, and the two layers beaten down nearly as much as for Mushrooms; they were then hooped over to be covered with "mats, hair cloth, or canvass." When the "violence" of the heat was over, "it being to be little more than bare warm," the pots with the *Tuberosa* were plunged—say in 70° to 75° of bottom heat, with a cold frame temperature over head, and no watering till the leaves were "grass high," or two inches. If all the gardeners of the last and present century had kept to that very old plan, this country might now be the richest in the world in bulbs of all climes. Nine out of every ten kinds of all the bulbs on the face of this earth would do to be potted in dry soil, to be plunged in something not hotter than "bare warm," and not to have a single drop of water till the leaves were "grass high," or fully two inches long. Yea, nine hundred and ninety-nine out of every thousand of them would do that way ten times better than ninety-nine out of every hundred British gardeners have done them for the last hundred years. I cannot make out when the mad start took place; but it was only on the wear out when I was a boy. Even then every bulb was roasted, baked, or boiled; and very many of them went the three stages on the same journey, but never came back to tell a tale. Ninety-nine out of every hundred kinds of bulbs known to us would do with cold-frame temperature till they were grass high; but no bulb dislikes a little more warmth under it than over it, except, perhaps, the very smallest bulbs of the *Ixia* tribe from South Africa. The tuber-rooted plants, or most of them, are much in the same condition as bulbs as respects their wants and the treatment to which they yield with the least injury to themselves: and our *Tuberosa* is not an exception.

The same treatment as to a Cape bulb seems to be the best treatment for the Italian *Tuberosa*—a little warmth below to start the roots in April, abundance of air, and a cool moist atmosphere about them till the leaves are three or four inches high; then to take them out of the frame, and to plunge the pots to the rim close to a south wall; to put some soft mulching round them, and to keep that mulching constantly damp, without allowing more water to the tubers than would do for any other kind of plant till the scape, or flower-stalk, is a foot or so high; then more water, just as to a forced Hyacinth, till the first flowers opened; and from that day the pots to be lifted, and to stand them in saucers, in or out of doors, with a little water in the saucers till the last flower is just opening. Or, if they are put out into a bed, as I had seen them at Frogmore, the soil should be light, very rich, and be kept very moist. Then, if one had access to the cocoa-nut refuse, an inch of it all over the bed or border would save watering and encourage the roots to the surface, then the hottest part of the ground.

I cannot say that I could fancy the *Tuberosa* in a flower-bed; but where there are borders near the doors

or windows, no plant is more desirable for two months. A few of them would scent a whole house, even from the outside. Strong-scented plants like this are not nearly so good for indoors as many people believe. At all events, such is a digest of the culture which the *Tuberosa* received in England when it was first introduced: and as the plan is in strict harmony with what I know to be the best treatment for hundreds of best bulbs, I can hardly believe but it is far preferable to the present mode, by which one can hardly see a dozen of good healthy plants of it in a day's march. As we cannot grow the *Tuberosa* so cheap and sure as those we buy, I see little use in bothering our heads about that part of the business: but in the old times they grew their own "roots" in England, the main points being a very rich border, a warm situation, and abundance of moisture; but "it rises not to flower that year."

It is the want of knowing the right act to be done at the right time which makes gardening so difficult to the amateur. But an example will best tell my meaning. Then let us have it from my fashions for August of this year, my very last experiment, the most promising I ever made, and it bears on the question in hand.

From the talk about *Tritoma uvaria* last year, and from the fine drawing of it in the "Illustrated Bouquet," nothing would do but we must have a lot of it into the Experimental at the end of October. Half-a-dozen, or seven or eight nice stocky blooming plants, two of which were put up for experiment, of course. The rootstock of this plant is as full of eyes as the rootstock, or rather the stump, of a Pine Apple plant after the fruit is cut, or as full as the rootstock of an old Polyanthus. There is an eye down below the surface of the ground for every leaf these plants had ever made. We gardeners know all that without seeing or scenting it. We had the tale about the yellow Polyanthus already, how that on the 1st of July every plant in a whole bed of it was cut an inch or two below the surface, every one of the young tops so cut made an independent plant, and the rootstocks below have all, save one, made a fine fresh growth, just such another crop of cuttings as the last crop, but more numerous. You may increase Polyanthus, double and single, Primroses and Auriculas of all sorts, just in the way of *Tom Thumb* Geraniums, for I cut some common border Auriculas at that time also to prove the thing. But the next move is that which pays the best. The one with the *Tritoma uvaria*, and all the other kinds will do the same way.

My two plants of this *Tritoma* I cut just as they used to cut Potatoes into "sets" in Ireland before the famine. I hunted out the eyes by the fireside, cut as much of the fleshy part to each set as I could manage; then, keeping them indoors for a week, dried them sufficiently to be safe for planting, and they were set in a row just like so many Potatoes. The two "roots" made fifteen sets, and every one of them is alive now; but unless it were in black and white you could hardly credit the size and strength of some of them. The oldest plant of them at Kew has not longer or more vigorous leaves, and three of them are in full bloom, which I can see through the window as I write. But the right act at the right time did it all. The place where they stand is the best place in the garden as to soil. There was a hotbed there last year, and the place for the bed was filled in with all manner of dead vegetables, and a large portion of the cocoa-nut refuse. Altogether it is nearly four feet deep; the soil, however, is rather light, and would hardly do for Cauliflowers. In the spring I allowed them to be over "grass high" before they had any watering except from the clouds. After they were six inches high I began to water them three times a-week; and when they got up to eighteen inches, they had water six times a-week. So strong was the water at times from the house-pails, that I was rather doubtful; but I like a kill-or-cure experiment. They

now grew amazingly. I am not easily surprised in a garden; but I confess I little expected to learn that *Tritoma uvaria*, like the *Agapanthus*, would live in water three of the hottest months in summer, if not four months. My plants were as much in water since the middle of summer as if they were in pots and in saucers of water, and I would risk a kingdom on the certainty that this very plant may be bloomed in pots, so as to be as fine as those in the flower gardens at Kew.

The way to do it will be this. In November plant strong pieces of flowering-plants in the open ground, in very light and very rich compost, so as they may have a wide spread of roots before they are six inches high in the leaves. As soon as they are about six inches out of the ground lift them carefully with a fork, and put them into the flower-pots at once, keeping them out with the Japan Lilies till we are up to summer heat; then give each pot a large feeder, a saucer, and begin with half an inch of water to see how they like it. After it is all right with them, keep the feeders full of water, and the moment you see the flower part rising in the centre, give liquid manure without waiting the clarifying process. I can vouch they will soon clarify it, and abundance of it too. Some of my leaves are over seven feet long, from the smallest sets. It may be possible to grow the leaves to ten feet high, and the flower-scapes in proportion; but I shall not go now farther than I can measure. What noble things to bring in pots on the terrace, the front hall, and even the coldest parts of the conservatory, when the Dahlias are gone! But about my price for them, as, under pot culture, there is no end to the seeds that may be perfectly ripened when the plants can be thus under control, and fit to put under cover on the slightest change of weather. Last autumn was so good, that seeds of *Tritoma uvaria* ripened near London, and vegetated as thick as grass. But I have begun another experiment, by which, I think, they will seed freely in the open border. D. BEATON.

GLEANINGS AT WORSLEY HALL.

BEDDING PLANTS FOR STOCK—CUT FLOWERS.

ONE of the greatest annoyances to the flower gardener at the present day is the insatiable and still ever-growing craving for cut flowers in rooms, independently of everything in the shape of circumstances. When his employers spend part of the year in the metropolis, or any other large town, common sense would point to the propriety of sending cut flowers of all sorts, to keep them in mind of the beauties of the country and the charms of their gardens and greenhouses. When the gardens and greenhouses in the country are at a considerable distance from the mansion, the practice has much to say in its favour; and, provided these masses of cut flowers are looked upon as the principal result, the gardener has no reason to grumble or complain. But in places where no principal doors can be opened but you come in contact with flowering plants—where not a window-muslin blind can be moved but the beauty of the parterre breaks upon the view—where a sash cannot be opened but the fragrance of flowers is wafted in—then the stuffing of such rooms with cut flowers, altogether irrespective of the more enduring adornments of these rooms, shows often anything but a refined taste. Where the arranging and attending to these are confided solely to the gardener, or the “lady of the house,” there will be less to find fault with in the way of taste, and nothing to complain of as to improper treatment. But when baskets of flowers are to be sent in at certain times, to be arranged by anybody and attended to by anybody, need we wonder that these vases of flowers, intended to adorn and perfume, send forth an aroma at times at which even Father Thames when most abused would roll his eyes in astonishment? If employers will have such masses of cut flowers, it is the gardener's duty to get them; if they will have flowers

in-doors instead of out-doors, that is their affair, not *his*; and if the matter ended here, there would be no cause of grumbling or discontent. But when basket after basket has been cut from the flower-beds on a morning, so that scarcely a single perfect truss is left, and the lady or the gentleman comes in the afternoon and says, “I am surprised our flower-beds look so poor in comparison with Lady B.'s”—from which a cut flower is rarely taken; the gardener cannot be blamed if he respectfully states that it is impossible to have the best flowers on the beds and such masses of best flowers in the house at one and the same time; but yet, ten to one, his honest straightforward statement will not meet with the requisite attention.

The same remark holds true with plants in rooms, and perhaps more so than with cut flowers. Myriads of fine plants are thus annually destroyed, and, in the majority of cases, their presence in rooms is such a deformity, that when I visit a strange mansion I feel a tingling at my fingers' ends to pitch the plants out of the window, in order to secure unity of expression in the room. I have previously stated how Mr. Fleming reconciled refined taste with floral adornments at Trentham.

Some time ago a lady requested me to look at her greenhouse and sitting parlour, or boudoir. She complained the greenhouse was rather thin of flowering plants; her boudoir was most richly and artistically furnished—what are called objects of *vertu* being, if anything, too numerous. At each of the three windows were little white-painted stages, covered with nice flowering plants in the common red-coloured pots. On asking my opinion, I stated that the room was very beautiful; but as the greenhouse was connected with it, and only a few yards from it, that the greenhouse, the parlour, and the plants, would all be greatly improved by the plants being moved to the greenhouse, and the stages to the lumber-room; and that, what flowering plants were in such a room should at least seem to grow out of one or two rich China vases which were then empty. Without such attention to artistic effect, and a background to harmonise, or neutralise, the rich furniture and the colouring of the walls, most plants in elegant rooms are just so many objects entirely out of place, and, consequently, partaking more of deformity than of refined interest.

Cut flowers when carried to an excess, so that the tables of the principal rooms look like so many competition tables at a flower show, leave a similar impression on my mind. There is, however, another mode of lessening the interest of flower-beds, which, in the generality of cases, cannot be avoided.

Under the present grouping system, there are but few places where the gardener can find room in winter for preserving more than rooted cuttings of the plants he wants for next season. Mr. Beaton rightly told us the other week that bedding Geraniums, put in as cuttings in the end of July, do far better every way than those put in later; and yet with that knowledge clearly before us, I, and many more, delay, putting in cuttings later, just because we do not like mutilating in the least the outline of our beds when so many visitors and friends of our employers are likely to see them. It is true, that, if carefully managed, cuttings may be taken from most things without much injuring the beds; but it is rare if many are taken in which a practised eye would not at once detect the result. Our friends near London generally escape this annoyance, as their families so often move about grouse time. Now, in all places where there is more room in the kitchen garden than is actually wanted, the lessening of the interest in flower-beds, from cutting their flowers, or thinning them for cuttings, may be avoided by adopting Mr. Davidson's system of planting large borders in the kitchen garden, in rough ribbon style, so as to have there close at hand enough of the whole of his bedding stock to secure abundance of

cuttings, and also plenty of cut flowers, without ever troubling his beds in the flower garden for any of such purposes.

MAKING VINE-BORDERS BY DEGREES—COVERING AND UNCOVERING EARLY VINERY-BORDERS.

To these matters attention has frequently been directed. When other matters are convenient and suitable, it is best to make a Vine-border by degrees as the roots extend, as thus the roots are longer furnished with fresh material. In renovating the borders Mr. Davidson had filled not half the allotted space. On removing the covering the crow-quill-like spongioles were looking out in every direction, asking for more feeding room, which they would soon get. When borders are covered it is common to find directions by the end of April and May to get them uncovered, forked over to let the heat of the sun into them. I lately dissented from this early uncovering; and showed that, wherever covering was used to retain heat in, or throw heat into, the soil, such early uncovering was prejudicial; because by experiment it was found the earth lost more heat than the sun gave it. The uncovering of the Vine-borders at Worsley was being done on the 25th of June; and the appearance of the Vines inside and the roots outside did not seem to say that the work was much or anything too late.

I shall just add one more gleaned crumb—

THE IMPORTANCE OF HEATED MANURE WATERINGS.

Fine crops of Mushrooms were in low houses, as firm and compact as at Christmas; the roofs being thick flag-stone, which served as a platform for examining the wide Pine-pits at back. The Pines were magnificent as respects plants and fruit. Melons were grown in great luxuriance in pits and span-roofed houses. Cucumbers had leaves like parasols; and so succulent and thick, as to baffle, without the assistance of shading, the sun to seorch or burn. Free-flowering plants were growing extra luxuriantly. All this, except in the case of the Mushrooms, I attribute chiefly to a free use of weak, clear, heated manure water, adding strength as the plants could bear it and required it. A large tank was sunk underground: here manure water was made, or brought from the farm, and allowed to ferment at will. When wanted, it is pumped into pots or water-barrels by means of a small iron pump. All this is common enough; but the simple thing worth mentioning is, that close to this tank stands a small copper wash-house boiler, with its furnace beneath, and its little funnel chimney. A small fire soon heats a copperfull; and, kept burning as wanted, there is no excuse for giving plants water at a lower temperature than the atmosphere in which they are growing. This is a far better arrangement than taking water from pipes in a forcing-house impregnated with iron, &c. In forcing, such warm water is indispensable in winter. In spring and autumn many cheeks are given, because water of the common temperature is given to plants in houses. I watered a Vine-border even a few days ago from a manure-water well; and if I had had such a convenience, I should have liked to have increased its temperature from 5° to 10°. The using of such heated water, manure or otherwise, is a good lesson for avoiding giving cheeks. The man who did this carefully would hardly make a practice of letting plants from a light glass house remain many hours or minutes in a dark shed; nor allow a plant from a tropical-heat house to stand in the open air or in a cold shed, until, after being thoroughly chilled, he found it convenient to take it back again, and then wonder if it flagged and shed its leaves.

R. FISH.

RENEWED GROWTH OF POTATOES.

I TRUST this may be the first intimation you receive on the subject; but I have to inform you with regret that the Potato crop in this district is in a critical state, owing to a second growth

from the tubers, with an unusual appearance of renewed vigour in the stalks, which, in some cases, are producing flowers.

On taking up the plants with withered stalks, the tubers are sound and ripe; but with those having green stems, the tubers are found to have sprouted; and, in some cases, I have seen a number of small ones as big as nuts, proceeding from the larger Potatoes, the quality of which is much injured, as on cooking they are hard and close.

From the long continuance of dry weather a premature decay of the stalks would not have been surprising; but to see the crop looking so green, I cannot account for. I shall be glad to learn what course would be the best to pursue, whether to take them up at once, or allow them to remain until the stalks fade.

I do not hear of the appearance of the old disease yet.—Z. A., Dartmouth.

[We have observed the same re-growth in Hampshire, and the crop was immediately taken up. Those tubers which had re-sprouted were separated for immediate use.]

THE ADVANTAGES WHICH RESULT FROM DEEP CULTIVATION.

HAVING withdrawn the superfluous moisture from soils by perfect drainage, there remains one,—a most important operation to be performed,—which consists in deeply moving the soil, and exposing it to the influence of the atmosphere; thereby allowing it to absorb ammonia, and disintegrating those mineral and saline substances which enter largely into the elementary construction of plants.

This is peculiarly a subject of interest to the gardener, whose productions depend so largely on an abundant supply of food for their succulence and flavour. Unlike the agriculturist, there are no bounds to his cultivation; while the latter, if he goes beyond certain limits, pays a heavy penalty for it, by having his cereal crops laid down, and much injured. Perhaps the farmers have profited by deepening their furrows, and not suffering their old, unbroken pan of earth to remain; thereby taking a lesson from the industrious and persevering market-gardener, whose practices have done so much to improve the culture of the earth, and whose perseverance is unrivalled.

There is one important advantage which we gardeners gain in light, dry soils by increased depth; it is the only way we can compensate for the rapidity with which a few hot suns evaporate moisture from our soil, by permitting the roots to descend to where the soil is comparatively cool and moist, and to recruit the exhausted energies of the plant.

It is a marvellous fact, that many old and imperfectly-dug gardens are considered worn out, when at the same time they possess under their surface a mine of mineral and saline ingredients, which merely want breaking up and exposing to render them available as food for plants. Let us advise the owners of such ground what to do. We would not, all at once, trench deeply, but we would at the next digging bring up a small quantity of subsoil to the surface, which, when commixed, will restore all the elements of fertility. Thus would we continue to do every other time of digging, and thus should we have a full supply of inorganic food for our crops. When I first came to Nineham, the garden there was completely exhausted of inorganic matters; and now, by biennial trenching and bringing up each time a small quantity of the bottom soil, it is one of the finest gardens extant. We have a soil thoroughly mixed, and a yard in depth. I have also tried some experiments upon the principle of the Lois Weedon plan of farming, and I have produced fine crops of the same vegetable year after year in succession. But I must not be understood as writing aught against the use of manurial agents—they are our *sheet anchors* in gardening; but it is amazing how teeming and inexhaustible is the womb of Nature; and the advantages which result to those who watch her operations, but to assist them, are great and manifold. Man is placed here upon the earth by an infinitely wise and good Creator. He orders and governs everything by His unerring laws; and it is for man to discover the beauty and accuracy of design, and by his industry to use them to the promotion of his own social enjoyment.

When a plant is placed in a given locality, it is daily absorbing from the ground those peculiar properties which it peculiarly requires; and when it comes to be removed, certain elementary principles are removed with it. This often repeated must naturally lessen the supply of this principle for other crops,

and this explains the reason of their subsequent failure and weakness of growth.

In the great heat and moist atmosphere of the tropics, plants grow with greater rapidity and more vigorously than in those of more temperate regions. In such climates, decay proceeds with greater rapidity than it does in our own country; carbonic acid and ammonia, the food of plants, are produced in greater abundance; whilst from the great heat and power of the sun plants can assimilate (in those countries) more of these substances than they can do in colder regions.

Thus, in all cases, it would appear that much in the growth of plants results from climatic influences, and it is quite possible to have the greatest development of vegetation without the soil being at all cultivated. The heated and moist atmosphere supplying, in tropical countries, all the elements of vegetation; whilst in our northern latitudes we are obliged to extract from mother earth, and to draw largely upon her hidden resources for the maintenance of that vigorous health which every gardener desires to see characterising his productions, and which can only result from practice and knowledge of laws founded by Eternal Wisdom, and exemplified and illustrated throughout the whole programme of creation.

Let, then, all cultivators of soil for garden purposes remember that shallow digging is of little or no use; and that, if they would bring their productions up to the highest perfection, they must trench periodically and deeply, bringing up at each operation a small portion of the subsoil to be disintegrated, and to have its inorganic constituents dissolved and made soluble, for by such means alone can they hope to preserve a steady habit of vigour in crops in this our northern latitude.

My own experience has now extended over many years, during a considerable portion of which I have had one of the largest consumptions to supply; but having adopted this plan of deep cultivation, I have been enabled to meet the demands made upon me with comparative ease. And wishing to be one of "those worthies" who make two blades of grass grow where one only grew before, I commend my plan to the gardening world, assuring them confidently of its certain success.

Persons who may be induced to try this should be careful in not bringing up too much clay or crude soil to the surface at once, but to introduce small quantities at a time. Should they do so, they may be induced to make the same objection which prejudiced farmers did to deep ploughing.

I have now briefly noticed most of the advantages resulting from the practice of deep cultivation; and will conclude by expressing my full belief that "a little" digging, like "a little learning, is a dangerous thing."

H. BAILEY, *Nuneham*.

BELLE VUE ZOOLOGICAL AND BOTANICAL GARDENS NEAR MANCHESTER.

It is more than twenty years since I first knew of the existence of a small tea garden on or near the spot where now the famous Belle Vue Gardens are situated. At the period I allude to, the Garden did not cover more than an acre of ground, but now it occupies, as the spirited proprietor, Mr. John Jennison, himself informed me, upwards of forty acres within the walls. Two parties have been concerned in bringing out such an astounding result. The first is the proprietor himself, who has, with persevering, never-tiring industry, "through good report and ill report," laboured so many years to bring the Gardens to their present state. The second party is, as may be surmised, the people of Manchester and its neighbourhood, who have so appreciated Mr. Jennison's well-directed efforts to please, amuse, and, let me add, instruct them, that they have attended by their thousands and tens of thousands, and thus furnished the means by which these Gardens have been established, and are now carried on to the extent they display.

My good friend and zealous coadjutor, Mr. Fish, and myself, had the pleasure of visiting these famous Gardens lately; but (his time being limited, though very desirous to do so) he could not take notes and give a report, and, therefore, it has fallen to my lot to try to describe them to the readers of THE COTTAGE GARDENER. We both thought them highly worthy of a report on several grounds. 1st. To show what a single individual can accomplish in catering rational amusement for the public. 2ndly. How certain the public are to patronise and reward such efforts to please them. 3rdly. The great benefit such gardens yield to the visitors, by giving the means of relaxation from business, espe-

cially such business as the operatives are engaged in daily in manufacturing districts like Manchester. Lastly. To encourage other men, like Mr. Jennison, to persevere in a similar way, and strive to gratify the public, for then they will certainly achieve success.

I only wish it had fallen into more able hands to describe, in detail, these interesting Gardens. However, I will try to do justice to them to the best of my ability.

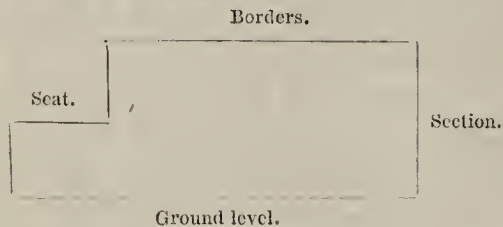
The Gardens are situated east from Manchester, and about two miles and a half from the centre of the city. Means of access by rail and omnibus are abundant. The omnibuses run from the centre of the city every quarter of an hour. There are two entrances, one close to the Longsight Station, on the London and North Western Railway; the other, which is the house entrance, is near the Asbury Station, on the Manchester and Lincolnshire Railway. Omnibuses run to both entrances. That the public have need of all these means of access and entrances may be imagined when I state the fact, that, in Whitsun week alone, 90,000 persons visited the Gardens. Whitsuntide is the great holiday of the Manchester folks. Most of the factories and warehouses are nearly closed that week on that account. I may here state that the management of this large establishment is jointly under the care of the proprietor and his two sons, Mr. John and Mr. George Jennison, ably assisted by Mr. Charles Crouch, the active and intelligent superintendent of the garden department, who has managed the Gardens for upwards of nine years, with what success my report of the state of the hothouses, &c., below will show.

I entered the Gardens from the Longsight end. Here are handsome, wide, lofty iron gates. The centre for carriages, and a wide gate on each side for foot passengers. An avenue of trees directs the eye to a lofty building and gates, which are the entrance to the Gardens. Under the archway there are two noble figures of lions couchant; and before the visitor is another avenue of half a mile. On the left hand is a large kitchen garden occupied with large plots of Salad plants, pits, Cucumber-house, orchard-house 200 feet long, and several long beds of Water Cresses. The orchard-house is newly erected, and is intended chiefly for the culture of Vines in pots, several scores of which were progressing favourably for next season's fruiting. This house serves admirably as a receptacle in winter for Azaleas, of which there is a large collection. I also noticed a considerable number of the old favourite plant, *Bleia Tankervillea*, in very fine health. These are to make a display in early spring. I noticed many long rows of the finest Celery I have seen this year, grown on much like the plan described by Mr. Fish lately. Also a large plot of *Ne Plus Ultra* Lettuce, the best of all Cabbage Lettuces for summer use. The common Mustard for salading is grown here wholesale, in a rather peculiar manner. The ground is duly prepared, then the seed is sown on the surface, and watered, but not covered with soil. What, then, think you? Why with thick canvass, which is allowed to remain on till the seed is sprouted and grown half an inch long; it is then removed, and the Mustard quickly becomes green. It is required in such quantities, that the man who gathers it mows it with a garden scythe! I could scarcely have believed this, had I not seen it done. The Water Cresses are cultivated in partly broad and partly narrow beds. The latter are formed so, in order to cover them with glass in winter to keep off the frost. Really they do things uncommonly here.

On the right hand the grounds are extensive, and diversified very agreeably with lawn, rivulets of water, flower-beds, rock-work, trees, and shrubs. Reaching the end of this part of the ground I turned to the right and came upon the grand sight of the season. A view of Rome, with the Temple of Janus in the centre, the Coliseum on the right, and the Capitol on the left. The perspective of this grand scene is exceedingly effective. Hills, woods, buildings, human figures, &c., appear as if real. The effect is greatly enhanced by a large sheet of real water in front of the painting, the size of which is enormous. I was told 20,000 feet of canvass were used for the purpose. The bank before this water affords standing room for 10,000 people; and there is a gallery behind this mass of spectators which will seat 2000 more.

Passing this gorgeous display of art, which was painted by Messrs. Danson and Sons, of London, I made my way to the hothouses, near to which I met Mr. Crouch, and requested him to show me the greenhouses, hothouses, and the flower garden. He very kindly complied with my request, and first showed me the flower garden, which though not very large, was in good trim, every bed being in full flower.

The beds are on grass, with walks running across. These walks are asphalted, and the asphalt is covered with white Derbyshire spar, which gives a lively variety to the green grass and the many-hued flowers. The colours in the beds were arranged thus—Four beds of *Calceolaria*, *Aurea floribunda* (the best yellow *Calceolaria* for bedding out); four beds of *Calceolaria Prince of Orange*, also good and well bloomed, not a decaying plant in the whole number. Purple was attained by four beds of *Purple King* Verbena. Scarlet, with two beds of *Lord Raglan* Verbena. Crimson, with two beds of *Verbena Hendersonii*. These were so placed as to compete with each other. Amongst them were beds of mixtures. Two were very neatly edged with *Nierembergia calycina*, covered with its pretty, bell-shaped, white blossoms. This edging is worthy of being introduced into every large flower garden. In order to allow visitors in dry weather to view these beautiful flowers at their ease, Mr. Crouch has formed all round the scene grassy seats something in this form—



to the extent of nearly a thousand feet. In the centre of the flower garden there is a large raised bed, the sides formed with rockwork, and a figure of the Goddess Flora in the centre; and at regular intervals there are many rustic vases, several of which were filled with the good horse-shoe-marked Geranium, the *Prince of Wales*, and others with Geranium *Brilliant*, both sorts in good bloom, and fine in foliage. These vases are about three feet high, and, consequently, the plants and flowers are brought close to the eye. The elevation of such objects has the desirable effect of giving variety to the floral scene.

On the south side of this beautiful flower garden there is a spacious span-roofed greenhouse, 70 feet long by 24 feet wide, filled now with various plants in flower—the *Fuchsia* chiefly predominating. All the best new kinds are grown, some in the pyramidal form, and others as weeping standards. Amongst them I saw some very fine varieties of *Balsams*, with flowers as double and almost as large as *Roses*. Also, purple and white *Egg* plants, in fruit, evidently grown to surprise many visitors, who never saw such curious fruit before. Also, some fine double *Petunias*, well grown and freely in blossom. These *Petunias* are, after all, well worthy of cultivation.

The roof of this greenhouse is covered with strong young *Vines*, only two years old, yet they are bearing some six or eight bunches of good *Grapes* already. Throughout the whole departments of these gardens the grand aim is to combine the *utile* with the *dulce*.

The borders on each side of this greenhouse are raised a foot and a half above the level, and they are planted with a fine collection of German and Ten-week Stocks, all double, and just now, the first week in August, in full bloom. From the large number of these sweet-scented flowers a powerful perfume is given out, thus gratifying the sense of smelling as well as the sense of seeing. Behind this greenhouse there is a very broad walk; and then a second range of glass-houses, consisting of a lofty span-roofed intermediate-house, a pinery, and a warm grotto fernery. The border in front of this range is planted with a fine collection of the best kinds of *Asters*, including *China*, *German*, and *Turkey* varieties of every colour and form. A splendid effect is thereby produced. I entered first the lofty intermediate-house: there I found more *Fuchsias*, but of a taller habit, to suit the house.

The roof was covered with all kinds of Gourds, trained up the rafters. These have a curious and novel appearance; for they, when in fruit, look like so many *Melons* trained up, and the variety of form and colour is really astonishing. At the very apex of the roof a *Vine* is growing, bearing fruit the whole length. But I must pass on or I shall never get through the whole range. The Pine-stove adjoins this intermediate-house. The plants are healthy, but have all fruited, and the suckers are allowed to grow on the stools and fruit again. This is the Hamiltonian system, with this difference, that only one sucker is allowed to grow and fruit on the old stool or plant. Formerly there was a shed behind this Pine-stove. This is now altered, the roof glazed, and

a pit formed. In that pit, filled with tan, there are growing a fine young stock of *Ixoras* and other stove plants requiring bottom heat. Finer, bushier young plants are not to be found anywhere. Mr. Crouch works by grafting the otherwise-difficult-to-grow *Ixora salicifolia* on *Ixora coccinea*, and finds that tender species to grow better, live longer, and flower more freely than on its own roots. This is a fact, for I saw it exemplified here. Every grower of this delicate species should immediately graft it on a stock of *Ixora coccinea*.

From the Pine stove I entered the grotto fernery, and here a remarkable thing presents itself to the most careless observer. A great part of the roof is densely covered with *Ficus repens*, or, as some call it, *Ficus stipulacea*. The young shoots of this plant are allowed to hang down and thus form a shade to the Ferns below. The walls are completely hidden with various Ferns, especially with *Nephrodium exaltatum*. On each side of the path there are various pillars and arches formed with rough stones and clinkers, united together with cement. In the hollows of these materials soil has been placed, and various Ferns and *Lycopods* planted therein. Moisture is kept up by keeping the floors wet and frequent syringings, and well these lovely-folaged plants reward the care bestowed on them. The effect is beautiful, and is much admired by visitors. The plants look so green, refreshed, and happy.

T. APPLEBY.

(To be continued.)

BRITISH POMOLOGICAL SOCIETY.

AN ordinary Meeting of this Society was held on Thursday, August 18th. F. G. Graham, Esq., Vice-President, in the chair.

This was a Meeting more for general business than for fruit, and some important matters were discussed relative to the extension of the Society's numbers and influence, and the list of autumn premiums for various fruits was considered and arranged.

The Secretary reported, that, although the circular to general members had been issued only two days, the following adhesions to the list of twenty-shilling subscribers were already recorded:—

Rev. G. W. Braikemridge; H. G. Bohn, Esq.; J. G. Chillingworth, Esq.; E. W. Cox, Esq.; Francis Davies, Esq.; Richard Ellison, Esq.; Wm. Everard, Esq.; Richard Frankum, Esq.; W. H. Gabbett, Esq.; F. G. Graham, Esq.; J. B. Haig, Esq.; Robert Hanbury, Esq., M.P.; Robert Hogg, Esq.; G. N. Hunter, Esq.; J. R. Neame, Esq.; W. D. Paine, Esq.; Rev. R. C. Pole, Esq.; Alexander Scrutton, Esq.; James Silver, Esq.; R. Stains, Esq.; Henry Webb, Esq.; R. S. Yates, Esq.; Messrs. R. A. Arnott; Alexander Dancer; Francis Dancer; Wm. Davidson; James Fraser (Lea Bridge); James Holder; James Ivory; Charles Lawson jun.; John Milne; George Paul; Wm. Paul; Thos. Rivers; T. F. Rivers; Thos. Taylor; and C. Turner.

The premiums to be awarded will be stated in future advertisements.

POINCIANA GILLIESII.

I WILL endeavour to lay before your readers my manner of cultivating this interesting plant, which, I regret to say, is not as common or as well known as it deserves to be. It is true that in our latitude it is not sufficiently hardy to stand our winters without protection, but by the following treatment it has afforded me the greatest satisfaction for several years past.

Having often admired it in its native country (Rio de la Plata), I brought home with me some seeds that I planted in the spring of 1850, in a hotbed, and, when up, pricked them out singly in pots; and I had the pleasure of seeing my plants growing rapidly and developing their beauty. At the approach of winter,—about the 1st of November,—I put the plants in a dry place,—sheltered from the frost, where they remained without any other care until the following spring. Towards the end of April I brought them out and placed them in a sheltered spot, well exposed to the sun. In the autumn of the second year I planted them in boxes of thirty-three centimetres (about thirteen inches) square. The third year the first flowers appeared, and their beauty, added to the graceful foliage, produced a most agreeable effect. My plants have now attained the height of four feet with a well-rounded head, produced by pruning every spring about one-third of the previous year's growth, which also produces an abundant bloom. On a single plant I have counted thirty clusters of flowers. It should be grown in an open soil, enriched with well-rotted manure, and should be watered every

evening, and occasionally with manure water. It has ripened its seeds perfectly last year.—FERDINAND GLOEDE.—(*L'Horticulteur Praticien*.)

[We have translated this for our readers in order to call their attention to what we believe to be one of the handsomest small trees ever introduced. It has been in our principal nurseries for some time, but is yet little known. The habit of the tree, and, indeed, the shape of the beautiful flowers, resemble the *Acacia julibrissin*; and we have little doubt that where that is hardy, this will stand also.—ED. *American Gardener's Monthly*.]

THE SCIENCE OF GARDENING.

(Continued from page 294.)

MANURES may also be beneficial to plants by affording carbonic acid gas to their roots. Animal and vegetable matters evolve this gas whilst putrefying; but we are not aware of any manure that absorbs it from the atmosphere, so as to be for that reason beneficial to vegetation. Lime attracts carbonic acid gas from the air rapidly, but combines with it so strongly, that it is useless to the plant until the carbonate of lime so formed is imbibed and elaborated by that plant.

It is to its power of gradually forming carbonic acid gas that charcoal partly owes its value as a manure. The chemical operation of charcoal, when employed for this purpose, is by no means so well understood as that of most other fertilising additions to the land. That the carbon of the charcoal operates so beneficially upon plants, amongst other modes by a gradual combination with oxygen, hardly admits of a doubt. Liebig gives the results of a series of experiments by Lukas on the use of charcoal as a manure, which seem to corroborate his opinion. From the facts which these chemists, however, adduce, it is evident that the beneficial action of charcoal, as a fertiliser, depends upon the presence of other substances besides carbon. Liebig notes (*Organic Chem.*, p. 62) that "plants thrive in powdered charcoal, and may be brought to blossom, and bear fruit, if exposed to the influence of the rain and the atmosphere. Plants do not, however, attain maturity under ordinary circumstances in charcoal powder when they are moistened with pure distilled water instead of rain or river water. Rain water must, therefore, contain within it one of the essentials of vegetable life; and it has been shown that this is the presence of a compound containing nitrogen: the exclusion of which entirely deprives humus and charcoal of their influence on vegetation." It is ammonia, to whose presence in rain water Professor Liebig thus refers, in whose valuable work (p. 207) the experiments of Lukas will be found. From these we learn that in a division of a low hothouse, in the Botanic Garden at Munich, a bed was set apart for young tropical plants; but instead of being filled with tan, as is usually the case, it was filled with powdered charcoal, the large pieces of charcoal having been previously separated by means of a sieve. The heat was conducted by means of a tube of white iron into a hollow space in this bed, and distributed a gentle warmth, sufficient to have caused tan to enter into a state of fermentation. The plants placed in this bed of charcoal quickly vegetated and acquired a healthy appearance. As always is the case in such beds, the roots of many of the plants penetrated through the holes in the bottom of the pots, and then spread themselves out; but these plants evidently surpassed in vigour and general luxuriance plants grown in the common way; for example, in tan.

M. Lukas then gives a list of several of the exotic plants upon which charcoal appears to have produced the most beneficial effects. It appeared also to promote the rapid germination of seeds. He then proceeded to try the effects of charcoal when mixed with vegetable mould, all of which answered very well. "The charcoal," continues M. Lukas, "used in these experiments was the dust-like powder of charcoal from Firs and Pines. It was found to have most effect when allowed to lie during the winter exposed to the action of the air. In order to ascertain the effects of different kinds of charcoal, experiments were also made upon that obtained from the hard woods and peat, and also upon animal charcoal; although I foresaw the probability that none of them could answer so well as that of Pine wood, both on account of its porosity and the ease with which it is decomposed. The action of charcoal consists primarily in its preserving the parts of plants with which it is contact, whether they be roots, branches, leaves, &c., unchanged in their vital

power for a long space of time, so that the plant obtains time to develop the organs for its further support and propagation. There can scarcely be a doubt, also, that the charcoal undergoes decomposition; for, after being used five or six years, it becomes a coaly earth. It exercises likewise a favourable influence by absorbing and decomposing the matters excreted by the roots of plants, so as to keep the soil free from the putrefying substances, which are often the cause of the death of the spongioles. Every experiment," concludes M. Lukas, "was crowned with success, although plants belonging to a great many different families were subjected to trial."—(*Ibid.*, p. 211.)

Professor J. F. Johnston (*Elm. of Ag. Chem.*, p. 142) recognises the good properties of charcoal as "a valuable mixture with liquid manure, night-soil, farmyard manure, ammoniacal liquor, or other rich applications to the soil." And, as he observes in another place, when speaking of the fertilising portions of farmyard drainage (*Trans. High. Soc.*, 1846, p. 190), "The only substance at present known, by which the separation of all the valuable ingredients from liquid manure can be fully effected, is animal charcoal. A sufficient supply of this substance, when intimately mixed with the liquid manure, will take up nearly the whole of the saline and colouring matters it holds in solution, will carry down the substances it holds in suspension, and will leave the water nearly pure and colourless. The refuse of the prussiate of potash manufactories will have this effect, and what remains when ivory-black is digested in spirit of salt (muriatic acid), will do still better; but this kind of charcoal is neither cheap nor abundant, and, therefore, cannot be recommended for general use. The refuse animal charcoal of our manufactories is now sold for manure at the price of several pounds a ton: either those who sell it, or those who use it, might render it still more valuable by causing fermenting liquid manure to filter through it before it is applied to the land.

"But other kinds of charcoal possess this property to a certain extent: wood charcoal, reduced to powder, charred sawdust, and charred peat, are all capable of being used with advantage in extracting the ammoniacal and other salts, which give its value to the liquid of our farmyards. Experiment has shown that when filtered through a bed of such charcoal, the liquid escapes without colour, and almost without taste, while the charred peat or sawdust is converted into fertilising manure. A great portion of the loss now incurred may be prevented by the use of such kinds of charcoal; and the fertilising substance may, through their means, be applied to our crops at seasons of the year for which, in their liquid form, they are not suited. It is even capable itself of yielding slow supplies of nourishment to plants; and it is said in many cases, even when unmixed, to be used with advantage as a top dressing. In moist charcoal the seeds of the gardener are found to sprout with remarkable quickness and certainty, but after they have sprouted they do not continue to grow well in charcoal alone."—(*C. W. Johnson's Modern Agricultural Improvements*.)—J.

(To be continued.)

NOTES UPON FERNS.

ODONTOSORIA TENUIFOLIA. J. Sm. (Synonym—*Davallia tenuifolia*, Sw.) Fronds lanceolate, two to three feet long, tripinnate; the ultimate divisions wedge-shaped, with simple forked veins, bearing one or two cup-shaped involucres at the extreme apex of each pinnule. Stipes about ten inches long, of a pale brown or amber colour, shining.

This Fern is a native of the East Indies and Malay Islands. It was first raised in Berlin from spores sent home by Mr. Neither from Ceylon, about four years ago. It is one of the most graceful plants in cultivation, the pale green colour of the finely-divided fronds contrasting well with the lively brown stipes. The generic name refers to the fructification being produced upon the tooth-like pinnules. This and the following are the only species of *Odontosoria* to be found at present in our gardens.

ODONTOSORIA ACULEATA. J. Sm. (Synonyms—*Adiantum aculeatum*, Linn., and *Davallia aculeata*, Sw.) Fronds lanceolate, tri-pinnate; pinnules broadly wedge-shaped, with two or four forked veins, each lobe terminated by a small oval cup containing the sporangia. Caulis shiny, hard, wiry, and flexuose, with numerous recurved spines.

This is a climbing Fern, a native of tropical America and the West Indian islands. The dark brown stems, which are not thicker than a quill, extend in every direction, scrambling over

bushes and even high trees by means of the sharp hooks so plentifully produced on all parts of the plant. It is very tough, and not easily broken. Travellers assert that it materially assists to make the jungles almost impassable; and that, in habit at least, it is more like a bramble than a Fern. It is a strong grower, and under cultivation requires plenty of pot-room.

GYMNOGRAMMA TRIFOLIATA. Desv. *Fronds* erect, fasciculate, three to four feet high, leafy to the base; simply pinnate in a young state, but in its normal form the *pinnæ* are ternate, and nearly of the same size (two to three inches long), the whole length of the frond. *Pinnules* linear, obtuse, minutely serrated; veins forking; venules free, bearing sporangia on their whole length in the upper part of the frond. *Stipes* purplish-brown, shining.

A native of the West Indies and tropical parts of America, where it is found growing on the banks of rivers. It is a very distinct plant: its tall erect fronds, which are much less divided than in any other species, make it very different to all the other *Gymnogrammas* in our gardens. The plants I have seen in cultivation are quite green on the under side of the fronds; but native specimens are covered below with a white waxy farina. When the pot is full of roots the plant is benefited by standing in a pan of water during the summer months.

MICROLEPIA NOVAE-ZELANDIÆ. J. Sm. (Synonyme—*Davallia Nova-Zelandia*, Col.) *Rhizome* creeping, somewhat slender, covered with black hairs. *Fronds* eight to ten inches long, ovate, acuminate, tri-pinnate, rather rigid. Ultimate *pinnules* ovate-lanceolate, acute; veins pinnate; venules free. *Sori* produced on the apex of the lower venules, covered with an early orbicular indusium, which is attached by its lower side. *Stipes* about six or eight inches long, brown, shining; the lower part covered with dark-brown jointed hairs.

Most of the *Microlepias* are large coarse-growing plants, unfit for cultivation where the space is limited; but this species is an exception. It forms a pretty little tuft of dark green fronds, lighter on the lower side, not more than eighteen inches above the pot in which it is grown. It is a native of New Zealand, growing in the rocky ravines of the northern island; and may, therefore, be successfully cultivated in a cool greenhouse. It does not grow freely from spores, but may easily be increased by dividing the creeping rhizomes: this operation always succeeds best in spring.—KARL.

SUNFLOWER CULTURE.

In your review of "New Books" (page 262), I was pleased to see quoted, as a profitable plant, the Sunflower (*Helianthus annua*), one of the noblest and gayest annuals for shrubby decoration. My experience with this plant warrants the testimony I add, relative to its merits, as a profitable plant for the farm.

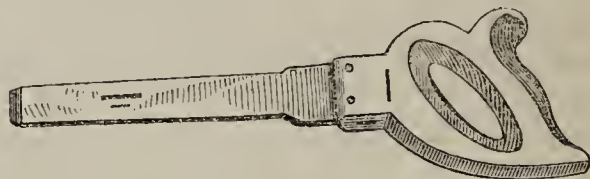
A few years ago I was engaged in the West of England to plant an orchard, comprising some sixteen acres, with all the leading varieties of Apples. Prior to planting, the ground had been trenched, what in garden phrase is termed "two spit and crumb." The second year after planting a heap of fresh dung, taken from the farmyard the first week in April, was thrown together in a corner, on the top of which was laid some light soil about six inches thick: this was drilled and Sunflower seeds sown. In a few days they vegetated, and the seedlings were ready for transplantation the second week in May. Three rows were then planted between each row of Apple trees, the latter operation being performed with a common dibble, and in dull, cloudy weather. In about a fortnight after the hoe was drawn deeply through the rows; and at the first indication of flower the centre bloom was cut out, which caused a greater equality in the distribution of the sap, and in the considerable augmentation of weight in the lateral heads. This process, likewise, greatly diminished the tendency to generate and organise those large gross leaves peculiar to this plant, and in the maintenance of which so much organisable matter is required, as following the results of that eminent physiologist and experimentalist, Hales, whose researches have led us to believe that the perspiratory powers of the Sunflower exceed that of man seventeen times. This knowledge, then, is valuable to the cultivator of the especial plant, as he must concentrate all his attention to the good supply of organisable matter while the plant is in a growing state. Also to diminish all tendency to luxuriance in leaf while the buds are preparing for expansion.

With this plant the harvest season falls the latter part of October or beginning of November, when the stems are cut off below the heads, and carted to the barn. During winter the heads are thrashed for cattle feeding; but for fowls the heads are thrown to them as gathered. Of a surety no fowls will leave a single seed in the head, it being of all food the most congenial to their taste. Hogs thrived and fattened, when fed with it twice a-day, in an incredibly short time; while on stall-fed oxen it produced a state of fatness in an amazingly short period.

I cannot, however, boast of reaping the enormous crop of from seventy to an hundred bushels expressed by the Yankee author. My crop averaged only from forty to forty-five bushels. The soil was a strong, rich, tenacious loam, resting on a subsoil of alluvial clay. Nor must I make the same omission as your clerical author. He does not state in detail the difficulties experienced in the harvesting of this useful viand. From its lateness of ripening much difficulty is experienced in securing the crop sufficiently dry, to prevent, when housed, the attack of mildew (*Cladosporium*), which if allowed to luxuriate soon either destroys the seed or alters the chemical properties.—J. R. TANTON, *Gardener to H. O. Nethercole, Esq., F.H.S.*

MENDENHALL'S DIBBLES.

WE welcome any improvement in horticultural tools and implements. The one we now give a representation of we have received from Mr. G. Mendenhall, of Sylvan Height Nursery, Richmond, Indiana, and find it to be, on trial, one of the most useful implements we have for a long time handled. Almost the only dibbles in use are broken or worn-out spade-handles; and every one knows what a labour it is to force these clumsy articles into anything but the very lightest kinds of soil. Mendenhall's Dibble "goes in of its own accord." Instead of being round it is nearly flat, the blade representing rather a mammoth screw-driver. The annexed cut, which we have had made from the one sent us, will give the idea.



Mr. Mendenhall informs us that they can be made for about one dollar, though the specimen sent for our inspection, being highly finished, cost more. Mr. Mendenhall deserves the thanks of all our readers for bringing so very useful, and yet so simple, an invention before their notice.—(*American Gardener's Monthly*).

NOTES ON NEW OR RARE PLANTS.

VIRGILIA CAPENSIS. Dec. Nat. ord., *Leguminosæ*. Native of the Cape of Good Hope.—A robust greenhouse evergreen shrub, reaching to the height of eight or nine feet, and branching numerously, but laxly. Branches, while young, somewhat tomentose. Leaves pinnate, based by a pair of subulate deciduous stipules. Leaflets numerous, linear-lanceolate, slightly falcate and mucronate, nearly glabrous above, but clothed below with closely-lying silvery hairs. Inflorescence in axillary racemes, on long peduncles. Calyx two-lipped; lips deeply cut, very much reflexed, and becoming membranous in age. Standard large, orbicular, reflexed, pale rose. Wings large, opening wide, rose. Keel short, much curved, greenish-white, and partially united. Stamens in two bundles, included within the keel. Pistil short. Pod much curved, hairy while young.

This is one of an excellent class of greenhouse plants, all of which are admirably suited for decorating the conservatory. The present species blooms in July and August most profusely. It requires plenty of room, as it is naturally a spreading plant; but the knife should be freely used to improve its habit. Good fibrous loam about two parts, and peat one part, with a free admixture of sand, are an excellent compost for it. Cuttings of the partially-hard twiggy side-shoots root moderately freely. Seeds are ripened in abundance.

HARMOGIA VIRGATA. *Shauer*. Nat. ord., *Myrtaceæ*. Native of New South Wales.—An erect, evergreen, greenhouse shrub,

with numerous slender twiggy branches. Younger branches quadrangular. Leaves opposite, somewhat decussate, linear, stiff, coriaceous, with a small mucro. Inflorescence axillary, umbellate, with very short peduncles and pedicels. Calyx nearly obsolete. Corolla consisting of five rotundate, concave, spreading, membranous, white petals, small. Stamens five or ten, inserted between the petals. Filaments very short. Anthers round, small, reddish. Style short. Stigma concave or flat.

This is a very rare greenhouse plant which cannot be too well nor too soon known, as it is a very free-flowering plant, and available, on account of the liveliness of its flowers, for cutting to make bouquets. A compost of about two parts of peat and one of good loam, with plenty of sharp sand, is such as it delights in. Cuttings put into slight bottom heat in early spring root freely. It blooms in July and August.

GENTIANA CILIATA. Linn. Nat. ord., *Gentianaceæ*. Native of the South of Europe, North America, and Siberia.—An herbaceous plant, with stems sometimes erect and sometimes nearly prostrate. Leaves slightly connate, broadly linear or lanceolate, keeled, and with reflexed margins. Peduncles long, rather angular and hollow. Calyx quadrangular, with a limb of four acuminate, keeled segments, two of which are longer, more acuminate, and more sharply keeled than the others. Tube of the corolla longer than the calyx, veined in lines. Limb of four twisted, obtuse, oblong segments deeply ciliated at margins from the base half-way up, dark blue. Stamens four. Filaments broad, approximating so as to present the appearance of a tube surrounding the ovary. Anthers yellow. Ovary angular, unilocular, many seeded. Style short. Stigma orbicular, bipartite.

This beautiful and exceedingly rare herbaceous plant requires the treatment given to alpine plants generally—viz., the protection of a cold frame in winter, during which period water should be almost entirely withheld, and a cool, somewhat shady place, out of doors, in summer. It should be potted in early spring; and the compost may consist of light, fibrous loam, with a little peat and plenty of sand: the drainage ought to be carefully secured. It is propagated by division and seeds.

CAMPANULA AZUREA. Banks. Nat. ord., *Campanulaceæ*. Native of the Swiss Mountains. Hardy, herbaceous, with erect, simple, angular stems. Root-leaves on petioles of moderate length, ovate, cordate at the base, serrated, and having a few scattered hairs on the underside. Stem-leaves sessile, acutely ovate or oblong, serrated, slightly hairy. Inflorescence paniced. Peduncles and pedicels small, furnished with linear or subulate bracts. Calyx segments five, subulate. Corolla narrowly campanulate, with a limb of five ovate, acute segments, varying in colour from azure blue to purplish-red. Stamens five, short. Pistil small, slightly hairy.

A very handsome and not by any means common species of this numerous and useful genus. It is perfectly hardy, loves a little shade, and any good garden soil. Propagation is effected by seeds and division of the roots. It blooms in the earlier summer months.—S. G. W.

BOUQUET HOLDER.

THE Bouquet holder, described at page 290 of THE COTTAGE GARDENER, would be improved if, instead of "placing under the bottom of each cup a circular piece of wood to separate them," the interspaces were filled up with wet sand, serving the better purpose of raising the cups, and of steadying them, as well as supporting the flowers. A nest of flat-bottomed gallipots, diminishing in size upwards, will do.—T.

BURNTWOOD GRANGE:

THE RESIDENCE OF CHARLES H. MAJOR, ESQ.

On the 10th inst. we were favoured with a sight of this exceedingly pretty place, situated on Wandsworth Common.

On our entrance at the lodge gates we saw a great number of beds at the side of the long carriage-drive, which leads to the house, well filled with bedding plants of every description, and most tastefully arranged. We next visited the geometrical flower garden, which consists of twenty-four beds, well filled with choice kinds of Geraniums, Verbenas, Calceolarias, &c.; also a great number of the best kinds of standard Roses. In the centre of this garden are a very neat fountain and basin, which

add greatly to the beauty of this spot. Wending our way through the various walks, we came in contact with several good specimens of the *Wellingtonia gigantea*, *Cephalotaxus Fortunei*, and two remarkably fine plants of the *Viburnum linus multiflorum*.

At the north side of the dwelling-house is a handsome span-roofed conservatory, 30 feet long by 20 feet wide; in which we noticed the beautiful *Passiflora cærulea*, which nearly covers the interior of the roof, and hangs in festoons. We also observed a fine plant of the *Acacia pubescens*, which covers the greater portion of the end wall; also standard Fuchsias in abundance, with other equally showy plants, which make the place as gay as possible.

Also on the north side of the house are two terraces, with beds and vases well filled with all the choicest kinds of bedding plants.

In the stove we found a handsome plant of the *Cyanophyllum magnificum*, nearly four feet high, and in vigorous growth. We were informed by the intelligent gardener, Mr. Johnstone, that this plant had grown two feet and a half since March of the present year. There were, also, fine bushy plants of the beautiful *Begonia rex*; *Ficus lucidus*, four feet high; *Stephanolis floribunda*; *Dracæna terminalis* and *ferrea*; *Croton pictum*; *Gardenia citriodora*, and a variety of other plants too numerous to mention. The greenhouse also looked remarkably gay with Fuchsias, Balsams, Coxcombs, &c.

In the front of the house we noticed a fine plant of the *Escallonia Montevidense*, eighteen feet high; and on the terrace, two fine plants of the *Oleander splendens*, covered with blossom. On the lawn we found fine specimens of the *Cedrus deodara*, some of them twenty-five high; also a plant of *Pinus Pinsapo*, twelve to fourteen feet high. The shrubs and American plants are particularly fine in general. We especially noticed a handsome specimen of the *Andromeda floribunda*, which was twelve feet through.

We next came to what is called the "Green Walk," which faces a meadow. This walk is 150 yards long, with a broad border ten feet wide, filled with all the best kinds of Verbenas, Petunias, Geraniums, &c., the whole backed with fine specimens of Yews, *Arbor Vitæ*, green and variegated Hollies, &c., which give this portion of the garden a good effect. At the southern end of this walk are a fountain and circular basin.

In the kitchen garden (which is surrounded with an excellent wall), and which is covered with some of the handsomest fruit trees we ever saw, we found fine trees of pyramidal Pears of the choicest kinds; likewise Apples and other fruits. The crops of all kinds of vegetables are very good. We particularly noticed the *Eugenie* and *Napoléon* Peas, growing about two feet and a half high, and covered with large pods. Mr. Johnstone informed us that these two varieties are well worthy of extensive cultivation, being very early and of fine flavour.

We cannot conclude this report without noticing the aquarium. There is a lean-to house built for the purpose at the eastern end of the dwelling-house. On our entering we were much struck with the interior, it being nearly filled with tanks containing the rarest salt-water fish; and we were informed that the worthy proprietor actually goes to the trouble and expense of procuring salt water direct from the English Channel for these curious and pretty little fish.—J. P.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 292.)

PEARS.

BEURRÉ DUVAL.—Fruit medium sized or large, of a short pyramidal shape. Skin greenish-yellow, covered with large dark-brown russet freckles, and with a flush of red next the sun. Eye large and open, full of stamens, and set in a wide shallow basin. Stalk obliquely inserted on the end of the fruit. Flesh yellowish, melting and juicy, sugary, and with a fine piquaney.

A very fine and distinct-looking pear, in use during November and December. The tree is hardy, and a good bearer as a pyramid.

Beurré d'Elberg. See *Flemish Beauty*.

Beurré Epine. See *Beurré de Rance*.

Beurré de Flandres. See *Beurré de Rance*.

Beurré Foidard. See *Flemish Beauty*.

Beurré Gecrards. See *Gilogil*.

BEURRÉ GIFFARD.—Fruit about medium sized, pyriform or turbinate. Skin greenish-yellow, mottled with red on the side next the sun. Eye closed, set in a shallow basin. Stalk an inch long, slender, and obliquely inserted on the apex of the fruit. Flesh white, melting, and very juicy, with a vinous and highly aromatic flavour.

An early pear of first-rate quality, ripe in the middle of August.

BEURRÉ GOUBAULT.—Fruit medium sized, roundish, and inclining to turbinate. Skin green, even when ripe. Eye large and open, inserted in a shallow basin. Stalk long and slender, inserted in a small cavity. Flesh melting and juicy, sugary, and with a fine perfumed flavour. Ripe in September.

The tree is an excellent bearer, and the fruit should be watched in ripening, as it does not change from green to yellow.

Beurré Gris. See *Brown Beurré*.

BEURRÉ GRIS D'HIVER (*Beurré Gris d'Hiver Nouveau*; *Beurré de Luçon*).—Fruit large, roundish. Skin entirely covered with thin brown russet, and tinged with brownish-red next the sun. Eye small, set in a very shallow basin. Stalk short and thick, inserted in a small cavity. Flesh white, melting and juicy, sugary and slightly perfumed.

A good late pear when grown in a warm situation, but otherwise coarse-grained and gritty. Ripe from January till March. It is best from a wall.

BEURRÉ HAMECKER.—Fruit large and round, bossed about the stalk. Skin greenish-yellow, mottled with brown, covered with patches and dots of fine brown russet. Eye small and open. Stalk an inch long. Flesh buttery, melting, and juicy, sugary and perfumed. Ripe in October and November.

Beurré d'Hardenpont. See *Glou Moreeau*.

BEURRÉ HARDY.—Fruit large and pyramidal, of a handsome shape and even outline. Skin shining, yellowish-green, thickly covered with large russet dots, and a coat of brown russet round the stalk and the eye. Eye large and open, set in a shallow basin. Stalk an inch long, stout and fleshy, warted at the base, and inserted without depression. Flesh white, melting and very juicy, sweet and perfumed with a rosewater aroma. Ripe in October.

The tree forms a handsome pyramid, and is a good bearer.

Beurré d'Hiver. See *Chaumontel*.

Beurré d'Hiver de Bruxelles. See *Easter Beurré*.

Beurré Incomparable. See *Beurré Diel*.

Beurré Isambert. See *Brown Beurré*.

BEURRÉ KENNES.—Fruit about medium sized, abrupt pear-shaped, truncated at the stalk end. Skin rather rough to the feel, from a coat of brown russet; on the side next the sun, and over a great part of the shaded side, it is of a vermilion red colour. Eye small and open, set in a wide and shallow basin. Stalk three quarters of an inch long, stout, fleshy at the base, and without a cavity. Flesh yellow, coarse-grained, half-melting, juicy, sweet, and aromatic. Ripe in the end of October.

Beurré de Kent. See *Glou Moreeau*.

BEURRÉ L'ANGELIER.—Fruit medium sized, obtuse-pyriform. Skin pale greenish-yellow, with a crimson blush on the side next the sun, and covered with numerous russet dots. Eye open, set in a shallow and wide basin. Stalk an inch long, inserted in a small cavity. Flesh tender, buttery and melting, with a rich and vinous flavour.

An excellent pear, ripe during December and January. It requires a warm situation.

BEURRÉ LEFÈVRE (*Beurré de Mortefontaine*).—Fruit large and obovate, sometimes oval. Skin greenish-

yellow on the shaded side, and considerably covered with brown russet; but on the side next the sun it is brownish-orange, shining through a russet coating and marked with a few broken streaks of red. Eye very large and open, set in a deep uneven basin. Stalk an inch long, fleshy at the base, and set on the surface of the fruit. Flesh white, rather gritty at the core, melting and very juicy, richly flavoured, and with a peculiar aroma, which is very agreeable.

A delicious pear, ripe in the middle and end of October. The tree is hardy, and an excellent bearer.

BEURRÉ LÉON LE CLERC.—Fruit medium sized, obovate. Skin smooth, of a lemon-yellow colour, having a tinge of red on one side, and covered with numerous large russet specks. Eye very small and open, set in a narrow and deep basin. Stalk an inch long, inserted in an uneven and rather deep cavity. Flesh white, melting and juicy, sweet and well flavoured, but without any particular aroma. End of October.

Beurré Lombard. See *Glou Moreeau*.

Beurré de Luçon. See *Beurré Gris d'Hiver*.

Beurré Lucratif. See *Fondante d'Automne*.

Beurré Magnifique. See *Beurré Diel*.

Beurré de Malines. See *Winter Nelis*.

Beurré de Mérode. See *Doyenné Boussock*.

BEURRÉ MOIRÉ.—Fruit above medium size, obtuse-pyriform. Skin greenish-yellow, considerably covered with pale bright yellow russet and russety dots. Eye small, set in a shallow basin. Stalk an inch long, stout, inserted in a cavity. Flesh buttery and melting, but not richly flavoured, and with a high perfume. Ripe in November.

Beurré de Mortefontaine. See *Beurré Lefèvre*.

BEURRÉ NANTAIS (*Beurré de Nantes*).—Fruit large and round. Skin covered with a coat of pale brown russet, like the Brown Beurré, through which a little of the greenish-yellow ground colour appears. Eye very small and open, set in a small and narrow basin. Stalk short, stout, and woody, placed on one side of the axis. Flesh rather coarse-grained, gritty at the core, not melting nor very juicy, but with a sweet and peculiar vinous flavour. November and December.

Beurré Napoléon. See *Napoléon*.

Beurré de Noirechain. See *Beurré de Rance*.

Beurré de Noir Chair. See *Beurré de Rance*.

Beurré des Orphelines. See *Beurré d'Aremberg*.

(To be continued.)

QUERIES AND ANSWERS.

GREENHOUSE FOR FLOWERING PLANTS AND VINES.

"I wish to erect a cool greenhouse for preserving plants, and growing, but not forcing, Vines. From the irregular area to be used, there will be behind it a shed five feet wide at one end, diminishing to two feet at the other. The aspect will be due south. It will be a lean-to, twenty feet long by twelve feet wide, six feet high in front, and twelve feet high at the back. I wish to adopt the rafter-sash-bar principle, both for the sake of economy and elegance, as my house will be conspicuous from the drawing-room windows. What should be the strength of the rafter-sash-bars, supposing I use sheet glass of sixteen ounces to the foot, and twelve by twenty inches? Mr. Rivers gives two inches and a half by three inches and a half when the glass is placed *across*; but I intend to place it *lengthwise*, as it seems to have been broken on some occasions when placed in the former manner. Can I dispense with opening the front glass if I place three openings of three feet by one in the front brickwork? How many Vines should I put in the length of twenty-four feet?"—A SUBSCRIBER.

[If you place your glass lengthwise, your rafter-sash-bars may be three inches by two inches, especially if you run an iron rod

along the middle of the house, secured by a screw to each sash-bar, and one column in the centre of the house to keep it up secure. Without that, we would not advise you to have less than three inches and a half by two inches and a half for rafters.

Openings in the front wall will be quite sufficient; in very hot weather you could also open your doorway. The idea of similar openings at the base of the back wall is a good one, and which has as yet been chiefly practised by Mr. Duncan, of Basing Park. It would be as well to have wire netting over these openings to keep out all vermin, and yet allowing the air to circulate freely. Similar openings near the top of the back wall will only be sufficient if you are careful to keep the two-feet ventilators in the shed open in all warm weather. The shelf you show in the shed, below the glass ventilator, will do for preserving many things during winter; but you will decidedly fail if you expect to get Strawberries there much earlier than you would get them out of doors, as the dividing-wall will keep all the direct sun from them except what comes through the open ventilators. It would be different if the dividing-wall were removed above that height, and the apex of the roof supported by strong studs. That would also have simplified the top air-giving, which would have been confined to the shed-roof. Such an arrangement would have made the house and the shed of a similar temperature. Without such an arrangement, the broad shelf for Strawberries should be on the greenhouse side of the partition-wall, just opposite where it now is. We allude to this because direct sun and air when needed, are essential to success with forced Strawberries. Supposing that the lofty fourteen-inch wall is already there, the building of the partition-wall at the back of the greenhouse could only be justified on the score of economy,—from the necessity of having a shed there for necessary work, and also preserving the hardier tender plants in winter. Otherwise the whole space might have been enclosed with a hipped-roof at back as now. If the partition-wall is not built to the top, and it is intended to have the shed and greenhouse quite distinct, and yet make the most of the former, then we would only make that partition-wall from six to nine feet in height, and have studs every four feet supporting the ridge-board; and the openings at the top would permit the sun to shine directly into the shed, or at least into its highest part. With the exception of the Strawberry-shelf however, we have no direct fault to find with your present arrangements.

You may grow six Vines in such a house, one two feet from each end, and the others four feet from each other, which will make the twenty-four feet. With little heat it is best to use the hardiest sorts, such as:—Blacks,—*Hamburg*, *Esperione*, *West's St. Peter's*. Whites,—*Dutch Sweetwater*, at the warmest end; *Royal Muscadine*, *Golden Hamburg*.]

DOUBLE-BLOSSOMED DATURA.

"We have now six plants of the *Datura flore-pleno* three feet high in pots, grown in a three-light pit, without heat, very healthy, but not showing bloom. Ought they to be put out of doors, and the pots sunk in the ground?"—R. N. P.

[We would advise turning your plants of *Datura* out of doors, mulching the pots over with rotten dung, and never letting them suffer for want of water. The full exposure will make them bloom if anything will. That bloom is generally freely produced on stout vigorous shoots of this season's growth, proceeding from buds on well-ripened wood of last year. If your plants do not bloom, reduce the allowance of water in autumn, house before frost, and prune back pretty close in winter or spring, and next summer's shoots will be sure to bloom.]

BREAKING UP POOR LIGHT SOILS.

"I have lately broken up some heath land which, when bastard-trenched, presented the appearance of a sandy desert, and is of the very poorest description. I have been strongly recommended to manure it with salt. Can you tell me the quantity it is safe to put on, and the best time of application? If you can also give me some advice as to the best mode of proceeding in breaking up and cultivating such land; and also as to the kinds of manures likely to be most beneficial, I shall be greatly obliged."—A CONSTANT READER, *Surry*.

[The soil you describe is unfertile from an excess of siliceous sand, and, consequently, incapable of retaining the moisture

absolutely necessary for the support of cultivated plants. The only remedy is by adding to the soil ingredients more retentive of moisture. These are chalk and clay: and if you could cover the soil you describe with a mixture in the proportion of two of chalk and one of clay to the depth of six inches, you would not do more than is required to improve the soil's staple. When the clay and chalk had been thoroughly incorporated with the soil, then any manure applied would be retained. Salt at the rate of twenty bushels per acre might be sown over the soil just before ploughing, or digging, preparatory for a crop. The scouring of ditches, the sediment of ponds, marl, crushed bones, and brick-layer's limy rubbish are all highly beneficial applications to such soils. Never burn the weeds or any other vegetable rubbish on such a soil, but mix all such vegetable matters with salt and lime to form a compost.]

BASINED TILES FOR FLUES—VINES AGAINST A TERRACE.

"Can you tell me the name and address of the manufacturer of the hollow tiles for top of greenhouse flues for holding water which is intended to pass off in steam, and so keep up a wholesome moist atmosphere?"

"I have a terrace sloping towards the south, and tolerably sheltered on all sides; this part of my garden having formerly been a chalk-pit. Can I grow Grapes over the terrace? and what would be the cheapest and most convenient kind of trellis for the purpose—I mean, convenient for getting at the Vines for pruning, &c.?"—E. G., *Reading*.

[We cannot lay our hands on the advertisement, but these tiles are generally made to order in most tile-yards. We have seen good evaporating-pans made by slips of tile, two inches deep and two inches wide, and of any length, fastened on the top tiles with a little cement. We would, if there were any difficulty, as soon have earthenware vessels placed on the top of the flue; as, when the tiles for covering are also used for holding water, there is a tendency for the flue in time becoming too damp. To ensure plenty of evaporation, take a little thin cement or mortar, and place on the top tile, before placing on it the evaporating basin, and move the latter backwards and forwards a little, so as to exclude air from the flue covering, and the evaporating vessel.

If your terrace wall is upright, or slopes at an angle less, rather than more, than 45°, we consider you may grow Grapes successfully. Strained wire would be your cheapest and best trellis; and the wire should be as near the back as convenient—say two inches and a half or three inches from it.]

COCOA-NUT FIBRE—STRIKING CUTTINGS.

"Will you tell me to whom I must apply about the cocoa-nut fibre so much recommended in your paper. I conclude I could, with small expense, have it brought to Windsor by barge from Kingston.

"I adopt the following plan for taking cuttings, which never fails, and does particularly well for Lemon-scented Verbena, *Enothera macrocarpa*, &c. I take two pots, one two sizes larger than the other. The larger one I fill with any coarse soil (I find soil better than moss), placing the smaller pot in the centre, with its rim about an inch or more above the larger one. I fill the smaller with the usual compost, after putting in thorough drainage. I put a little sand on the top, and put in my cuttings, giving a thorough soaking; and when the foliage is quite dry I put on a bell-glass, which must fit between the two pots: the edge of the glass must be covered with soil, so as to prevent any air getting in. I then stand the pots in a saucer, which must be always filled with water. In a few days, according to the plant, the cuttings root. I have raised potfuls of Pink pipings without one failure. The glass wants no shading, and must not be taken off till the cuttings show new roots, and then by degrees left off.

"May I move a large flowering Myrtle now? It has just done flowering. It has grown too large for the conservatory in which it is planted, and I want to remove it to the back wall of the same."—KATE.

[Your query about the cocoa-nut fibre is answered at page 256 of the current volume. The cocoa-nut refuse is so cheap, that it will bear no trouble or expense in selling. "It will not pay to send it out, or even to load the carts." We have said repeatedly

that those who would have this mulching must send to the heap—not to any person or office whatever. Coal and other barges leaving Kingston could take return loads of it cheap enough, as the mills are within one mile of the wharfs.

Your mode of propagation is one of the best of all we know. With care you may move your Myrtle now.]

MARLY-LE-ROY.

BY JEAN BERNOUILLET, NEAR RALEIGH, N. C.

REVOLVING in my mind how I could offer my mite towards the building up of the *Gardener's Monthly*, I bethought me that I know a good deal about the royal haunts round Paris, having served as a gardener there many years ago in the Royal Gardens. Such a topic might interest part of the general public of the *Monthly*, and, in particular, the "landscapers."

Marly is the result of a whim of the *grand monarque*, Louis XIV. That sovereign, who considered himself the centre of the civilised world, and who, indeed, not only ruled France, but also ruled the rulers of England, of Spain, of Italy, who kept the Netherlands in check, and overawed Protestant Germany,—that sovereign, like many weaker mortals, considered himself entitled to some play. Sometimes his recreations took a high character, for instance, furthering and regenerating literature and the arts; sometimes his flight was low, in imitation of Ovid's gods. He had built that vast and splendid pile, Versailles, which, after so many succeeding works of a similar character all over the world, is still the pride of France and the admiration of critics. But from very satiety of splendour, feasts, and revels, he began to get tired, threw himself into the opposite extreme, praised the life of a hermit; and so, one fine morning, without letting the court know, he leaves Versailles, takes with him but a few men of taste, and roams about with the eye of a landscape gardener. As they ride along they criticise, and at Lucienne, near Bougival, Cavois points out a spot worthy of a royal residence.

"It is too fine," says Louis, "and it would ruin me. Besides, that is not what I want. I want a mere nothing,—a cottage,—a hermitage where I might retire and shed tears, when I should feel inclined that way."

Cavois, a true enthusiast, breaks forth in a new praise.

"Well," says the King, "if it is so fine, take it yourself. I give you the ground."

And Cavois really built, some time after, a charming little *château* on this spot. I have been in it, and I recollect having been shown, in the great hall, an old clock which Cavois put there, and which the servant, with no small pride, called "la Cavoise."

The party rides on, over turnpikes, by-roads, through lanes where even royal horses cannot get along, and the king and courtiers must needs get out and stump it. Here they get into a small narrow valley, steep hills round, hardly accessible on account of swampy bottom, and no view. On the steep slopes of the hills, terrace-like, stand the miserable huts of the village Marly.

That pleases the king's fancy. "Here," thinks Louis, "I surely cannot ruin myself. Here I may build and play the hermit in good style."

Cavois ventures to remonstrate: "Your Majesty cannot possibly build here except at the east end. This valley is narrow, deep, steep,—a swamp into which all the gutters and cesspools of the villagers above must empty,—a morass full of toads, frogs, and snakes,—and, moreover, it is hard of access."

"That's the best of it. Nobody to bother me here. No room for the grand court, no luxurious improvements,—and I'll come on horseback here."

Hardouin Mansard approves of the king's idea. An artist like Hardouin delights in difficulties, and he is the royal artist. Right on the spot he takes the commission to buy the ground and to set to work. A few days after he submits to Louis his plan. There was to be the main building, a pavilion, a flower garden, and a shrubbery. A little later this was not quite sufficient,—a supplementary building was required; another lapse of a few months, and a second pavilion must be erected. In this wise, one improvement came after the other, until they had to cut space out of the hillside. A little bit of a view was also gained by considerably widening the mouth of the valley.

About a twelvemonth or so after the last and final improvement, Cavois, the noble courtier, one morning admitted into the royal presence, finds the King bent over a map. After a while the King looked up.

"Is that you, Cavois! You come *à propos*. You recollect Marly. I was hunting yesterday, and alighted at Marly. It is abominable."

"Ah! sire," says Cavois, "take back Lucienne. Next to your giving it to me is the pleasure of taking it back of me. It ever *is* a royal spot."

"Par la Sainte Anne!" exclaims the King, "but I want Marly. I have sent for Mansard already."

Mansard comes,—Mansard the great architect, to whom, by the-by, we owe that sort of attic called after him "Mansarde."

And now, dear reader, if I had you on the ground you and my old maps and plans, I could show you the changes, the improvements and the disimprovements made in Marly. You would be astonished at the wonders which a royal command of those times and the ingenuity of artists could accomplish. But I must not go into details, and so I will briefly say that there was no end of alterations. They were dropped and taken up again, as the mood (and possibly also the finances) of the King directed him. There rose buildings, statues, fountains, aqueducts; there rose ready-grown forests and parks. For, by the royal authority, whole regiments of labourers were enrolled and commanded in military style and discipline. They brought large trees by the thousands from Compeigne and further off. Three-fourths died; but what of that? they were as quickly replaced. At another time large tracts of natural forest were cut down, and as large sheets of water made instead, and the courtiers took the ladies a promenade on the lake, where, not long ago, the sky was hardly visible through the dense forest growth. Then, again, the same sheets of water were filled in again, and a forest planted, and planted so thickly that again you could not make out the sky in it. (I quote here St. Simon, who speaks from his own knowledge.) The same with walks, flower gardens, drives, parks, terraces, and game preserves.

The king acted the landscape gardener; but, instead of drawing with pencil and wiping out with India-rubber, he put down and wiped out the *reality*. Nor could he satisfy himself, so that this Marly-le-Roy or royal Marly, which was to be a mere *pied à terre*,—a mere cottage—an humble hermitage for a kingly and repentant sinner, which was to cost next to nothing, in reality cost millions upon millions, as much, and more, perhaps, than glorious Versailles. Happy are we who live in the good *new* times. The race of arbitrary rulers has died out, but the race of artists still lives.—(*American Gardener's Monthly*.)

NOTES FROM PARIS.

THE NATIONAL FÊTE.

To day (August 15th) it is the fête of St. Napoléon, the grandest of all the fêtes here, and a day of proud rejoicing for Frenchmen everywhere. Yesterday the army of Italy, with the Emperor at its head, made a triumphal entry into the capital, covering the whole of the spacious Boulevards, and taking more than four hours to defile past a given point. Paris is now in a blaze of splendour; it is covered with flags, coloured lamps, and lanterns; all the leading thoroughfares are studded with triumphal arches, columns, and statues, and all the people are happy and gay. Immense numbers of visitors from England, Belgium, Holland, Germany, and other countries, fill the hotels and cafés. But as everything relating to the camp, the crowd, and the *cortège*, will reach your readers by other channels, I shall only speak of such things as belong more properly to your columns, and which are not likely to be noticed elsewhere. First, then,

THE FLOWER MARKETS

have been in a state of the greatest activity for some days, and every nook and corner has been turned into a stall for plants and bouquets. The dealers are at their work night and day in order to keep up the supply. At every turn people may be seen carrying bouquets or plants in flower, neatly wrapped in paper. Now it is a cab chock full; then it is a van belonging to some of the grand flower-shops of the Boulevards, and the adjoining streets; or it is only a porter with an ordinary load for some *petit rentier*. Many poor people who have but little to do at another time are sure to take to selling flowers at present, and as sure to turn them to good account. It is not only for the decoration of apartments, windows, and balconies at this festive season that the flower trade is so brisk, for thousands of bouquets, wreaths, and garlands were required for the army. All the eagles and trophies were decked with flowers; and those of the soldiers who

could obtain them had pretty little bouquets, bunches of Fern, or small branches attached to the points of their bayonets. The whole line of march was a profusion of flags, long banderoles, garlands, and flowers at all the prominent points, and near the triumphal arches were hundreds of large flowering plants of every kind. Near the theatre of the Opera Comique, in particular, a magnificent column was surrounded at the base with as many as would fill a suburban garden. This was protected by a neat trellis, and illuminated in the evening. In the churches it is the custom to decorate the precincts of the altar with a great many flowering plants, which in the evening are beautifully illuminated by means of globe lamps placed among them at certain distances. At the present time the principal churches offer a splendid *coup d'œil* in this way at night.

THE CENTRAL MARKETS.

No person coming to Paris for pleasure or sight-seeing should fail to go down to the *Halles Centrales* about four or five in the morning. On such occasions as the present this quarter is a rare scene of bustle, and all that comes from the garden or field may be seen here in the greatest profusion. These markets occupy an immense extent of ground, but at present they are not half large enough; for all the adjoining streets are entirely taken up with the market-gardeners, even as far back as the Rue de Rivoli on one side and the Boulevard de Sebastopol on the other. The wide pavements are covered with fruit and vegetables; and, walking through the vast crowd of buyers and sellers, of porters and hucksters, there is an unvarying deafening hum of hoarse, harsh, husky voices, which can only be compared to the roaring of the waves by the seashore. Then there are such singular brown sunburnt faces; such odd costumes, and such piles of Melons, Cucumbers, Carrots, Cabbages, Leeks, Lettuces; such innumerable baskets and hampers of Apples, Pears, Figs, Plums, Grapes, and Peaches. Even at this early hour carts and vans from the hotels and restaurants are hurrying home with their loads; for the whole population of Paris, it would seem, is already in the Boulevards, and market people and restaurants get very little sleep or rest at present.

Turn now to the division of flowers. In every stall there are already scores of beautiful bouquets piled up; and in an hour or two these, and as many more in the course of rapid formation, will have been bought up, and their places filled with fresh materials from the gardens of the suburbs. In every stall there are several extra hands as busy as possible. One is occupied in sorting the flowers, so that every colour and form may be separated from another; a second is tying the flowers on their slender reeds; and these are in turn taken up by a third, who is constructing the bouquet. This sort of work will go on till late at night in all the flower-shops and markets of Paris.

THE ILLUMINATIONS (AUGUST 16),

Were on a grand scale, especially in the Garden Imperial of the Tuilleries. But on the Boulevard des Italiens the branches of several of the large trees were studded with coloured lamps; and this form of illuminating, though less dazzling than others, was really the most beautiful of all, and was generally admired. The grandest display of all in the evening is the magnificent "bouquet" which forms the *finale* to the fireworks. This takes place on the Place des Invalides, and may be seen from all the quais and bridges, which, on such occasions, are covered with thousands of people, all pleased and happy with everything and with one another.—K.

VARIETIES.

THE FORESTS OF CEYLON.—It is much to be regretted that the want of the means of transport renders the timber of these forests perfectly valueless. From age to age these magnificent trees remain in their undisturbed solitudes, gradually increasing in their apparently endless growth, and towering above the dark vistas of everlasting silence. No one can imagine the utter stillness which pervades these gloomy shades. There is a mysterious effect produced by the total absence of animal life. In the depths of these forests I have stood and listened for some sound until my ears tingled with overstrained attention; not a chirp of a bird, not the hum of an insect, but the mouth of Nature is sealed. Not a breath of air has rustled a leaf, not even a falling fruit has broken the spell of silence; the undying verdure, the freshness of each tree, even in its mysterious age, create an idea

of eternal vegetation, and the silvery, yet dim, light adds to the charm of the fairy-like solitude which gradually steals over the senses. I have ridden for fifteen or twenty miles through one of these forests without hearing a sound, except that of my horse's hoof occasionally striking against a root. Neither beast nor bird is to be seen except upon the verge. The former has no food upon such barren ground; and the latter can find no berries, as the earth is sunless and free from vegetation. Not even monkeys are to be seen, although the trees must produce fruit and seed. Everything appears to have deserted the country, and to have yielded it as the sole territory of Nature on a stupendous scale. The creepers lie serpent-like along the ground to the thickness of a man's waist, and, rearing their twisted forms on high, they climb the loftiest trees, hanging in festoons from stem to stem like the cables of a line-of-battle-ship, and extending from tree to tree for many hundred yards; now falling to the earth and striking a fresh root, then, with increased energy, remounting the largest trunks, and forming a labyrinth of twisted ropes among the ceiling of the forest. From these creepers hang the Sabre Beans. Everything seems on a supernatural scale; the bean-pod four feet or more in length, by three inches in breadth; the Beans two inches in diameter. Here may be seen the most valuable woods of Ceylon. The Ebony growing in great perfection and large quantity. This tree is at once distinguished from the surrounding stems by its smaller diameter and its sooty trunk. The bark is crisp, jet black, and has the appearance of being charred. Beneath the bark the wood is perfectly white until the heart is reached, which is the fine black ebony of commerce. Here also, equally immovable, the Calamander is growing, neglected and unknown. This is the most esteemed of all Ceylon woods, and it is so rare that it realises a fancy price. It is something similar to the finest Walnut; the colour being a rich hazel brown, mottled and striped with irregular black marks. It is superior to Walnut in the extreme closeness of the grain and the richness of its colour. There are upwards of eighty different woods produced in Ceylon, which are made use of for various purposes; but of these many are very inferior. Those most appreciated are,—Calamander, Ebony, Satin-wood, chiefly used for furniture and cabinet work; Suria (the Tulip tree); Tamarind; Jackwood; Halmileel; Cocoa-nut; Palmyra. The Suria is an elegant tree, bearing a beautiful yellow blossom something similar to a Tulip, from which it derives its name. The wood is of an extremely close texture, and of a reddish-brown colour. It is exceedingly tough, and it is chiefly used for making the spokes of wheels. The Tamarind is a fine, dark, red wood, mottled with black marks; but is not in general use, as the tree is too valuable to be felled for the sake of its timber. This is one of the handsomest trees of the tropics, growing to a very large size, the branches widely spreading, something like the Cedars of Lebanon. Jackwood is a coarse imitation of mahogany, and is used for a variety of purposes, especially for making cheap furniture. The latter is not only economical, but exceedingly durable, and is manufactured at so low a rate, that a moderate-sized house might be entirely furnished with it for £150. The fruit of the Jack grows from the trunk and branches of the tree, and when ripe it weighs about twenty pounds. The rind is rough, and when cut it exposes a yellow pulpy mass. This is formed of an infinite number of separate divisions of fleshy matter, which severally enclose an oval nut. The latter are very good when roasted, having a close resemblance to a Chestnut. The pulp, which is the real fruit, is not usually eaten by Europeans on account of its peculiar odour. This perfume is rather difficult to describe; but when a rainy day in London crams an omnibus with well-soaked and steaming multitudes, the atmosphere in the vehicle somewhat approaches to the smell of the Jack-fruit. The Halmileel is one of the most durable and useful woods in Ceylon, and is almost the only kind that is thoroughly adapted for making staves for casks. Of late years the great increase of the oil trade has brought this wood into general request, consequent upon the increased demand for casks. So extensive and general is the present demand for this wood, that the natives are continually occupied in conveying it from certain districts which a few years ago were utterly neglected. Unfortunately the want of roads and the means of transport confine their operations to the banks of rivers, down which the logs are floated at the proper season. I recollect some eight years ago crossing the Mahavelly river upon a raft which my coolies had hastily constructed, and reaching a miserable village near Monampitya, in the extreme north of the Veddah country, The river is here about 400 paces wide, and in the rainy season a

fine volume of water rolls along in a rapid stream towards Trincomalee, at which place it meets the sea. I was struck at the time with the magnificent timber in the forests on its banks, and no less surprised that with the natural facilities of transport it should be neglected. Two years ago I crossed at this same spot, and I remarked the wonderful change which a steady demand had effected in this wild country. Extensive piles of Halmileel logs were collected along the banks of the river, while the forests were strewed with felled trees in preparation for floating down the stream. A regular demand usually ensures a regular supply, which could not be better exemplified than in this case. Among fancy woods, the *Bread-fruit Tree* should not be omitted. This is something similar to the Jack, but, like the Tamarind, the value of the produce saves the tree from destruction. This tree does not attain a very large size; but its growth is exceedingly regular, and the foliage peculiarly rich and plentiful. The fruit is something similar in appearance to a small unripe Jack-fruit with an equally rough exterior. In the opinion of most who have tasted it, its virtues have been grossly exaggerated. To my taste it is perfectly unentable, unless fried in thin slices with butter; it is even then a bad imitation of fried Potatoes. The bark of this tree produces a strong fibre, and a kind of very adhesive pitch is also produced by decoction. The *Cocoa-nut* and *Palmyra* woods at once introduce us to the Palms of Ceylon, the most useful and the most elegant class in vegetation. For upwards of 120 miles along the western and southern coasts of Ceylon, one continuous line of Cocoa-nut groves wave their green leaves to the sea-breeze, without a single break, except where some broad clear river cleaves the line of verdure as it meets the sea.—(*Baker's Ceylon*.)

SHENSTONE AND THE LEASOWES.—Though Dr. Johnson speaks so contemptuously of Shenstone's rural pursuits, he could not help acknowledging that when the poet began "to point his prospects, to diversify his surface, to entangle his walks, and to wind his waters," he did all this with such judgment and fancy as "made his little domain the envy of the great and the admiration of the skilful; a place to be visited by travellers, and copied by designers." Mason, in his "English Garden," a poem once greatly admired, but now rarely read, and never, perhaps, with much delight, does justice to the taste of the Poet of the Leasowes.

"Nor, Shenstone, thou
Shalt pass without thy meed, thou son of peace!
Who knew'st, perchance, to harmonise thy shades
Still softer than thy song; yet was that song
Nor rude nor inharmonious when attuned
To pastoral plaint, or tale of slighted love."

English pleasure gardens have been much imitated by the French. Viscomte Girardin, at his estate of Ermenonville, dedicated an inscription in amusing French-English to the proprietor of the Leasowes:—

THIS PLAIN STONE
TO WILLIAM SHENSTONE;
IN HIS WRITINGS HE DISPLAYED
A MIND NATURAL;
AT LEASOWES HE LAID
ARCADIAN GREENS RURAL.

The Viscomte, though his English composition was so quaint and imperfect, was an elegant writer in his own language, and showed great taste and skill in laying out his grounds. He had visited England, and carefully studied our modern style of gardening. He had personally consulted Shenstone, Mason, Whateley, and other English authors on subjects of rural taste. He published an eloquent description of his own estate. His famous friend Rousseau wrote the preface to it. The book was translated into English. Rousseau spent his last days at Ermenonville, and was buried there in what is called the Isle of Poplars. The garden is now in a neglected state, but the tomb of Rousseau remains uninjured, and is frequently visited by the admirers of his genius. "Dr. Wharton," says Bowles, "mentions Milton and Pope as the poets to whom English landscape is indebted, but he forgot poor Shenstone." A later writer, however, whose sympathy for genius communicates such a charm to all his anecdotes and comments in illustration of the literary character, has devoted a chapter of his "Curiosities of Literature" to a notice of the rural tastes of the proprietor of the Leasowes. I must give a brief extract from it:—"When we consider that Shenstone, in developing his fine pastoral ideas in the Leasowes, educated the nation into that taste for landscape-gardening which has become the model of all Europe, this itself constitutes a claim on the gratitude of posterity. Thus the private pleasures of a man of genius may become at length those of a whole people. The creator of this new taste appears to have received far less notice than he merited.

The name of Shenstone does not appear in the 'Essays on Gardening,' by Lord Orford: even the supercilious Gray only bestowed a ludicrous image on these pastoral scenes, which, however, his friend Mason has celebrated; and the genius of Johnson, incapacitated by nature to touch on objects of rural fancy, after describing some of the offices of the landscape designer, adds, that 'he will not inquire whether they demand any great powers of mind.' Johnson, however, conveys to us his own feelings, when he immediately expresses them under the character of 'a sullen and surly speculator.' The anxious life of Shenstone would indeed have been remunerated, could he have read the enchanting eulogium of Whateley on the Leasowes; 'which,' said he, 'is a perfect picture of his mind—simple, elegant, and amiable; and will always suggest a doubt whether the spot inspired his verse, or whether, in the scenes which he formed, he only realised the pastoral images which abound in his songs.' Yes! Shenstone had been delighted could he have heard that Montesquieu, on his return home, adorned his '*château Gothique, mais orné de lois charmans, dont j'ai pris l'idée en Angleterre*;' and Shenstone, even with his modest and timid nature, had been proud to have witnessed a noble foreigner, amidst memorials dedicated to Theocritus and Virgil, to Thomson and Gesner, raising in his grounds an inscription, in bad English, but in pure taste, to Shenstone himself, for having displayed in his writings 'a mind natural,' and in his Leasowes 'laid Arcadian greens rural;' and recently Pindemonte has traced the taste of English gardening to Shenstone. A man of genius sometimes receives from foreigners, who are placed out of the prejudices of his compatriots, the tribute of posterity!"—"The Leasowes," says William Howitt, "now belong to the Atwood family; and a Miss Atwood resides there occasionally. But the whole place bears the impress of desertion and neglect. The house has a dull look; the same heavy spirit broods over the lawns and glades; and it is only when you survey it from a distance, as when approaching Hales-Owen from Hagley, that the whole presents an aspect of unusual beauty."—(*Richardson's Flowers and Flower Gardens*).

TO CORRESPONDENTS.

VINERY (*A Subscriber from the Commencement*).—There is no doubt that all your arrangements will answer well. If we made a suggestion, it would be to use but little rotten leaves in such a border; the bones will secure both richness and openness. The fine soil on the surface we would reduce to a couple of inches or so; the border will all get fine enough ere long. It would be as well that the lower row of flags, &c., were made root and waterproof. The open rubble above them would take all extra water to the deep drain in front. If the house is to be forced early, a means of heating the border from below would be worthy attention. In moderate early forcing, protecting the surface early will do. The slope of the border will give it a good command of the sun's rays. If early forcing is attempted, without heating or covering the border, the inside roots must be chiefly depended on for early work.

GREENHOUSE LINING (*G. Hart*).—We believe the lining of the inside of a greenhouse, if that is what you mean, to be a matter of no moment, but depending entirely on the taste and means of the proprietor. A good hack wall lime-whitewashed to any colour—say a dark stoue, looks well, and may be renewed once or twice a-year. Sulphur may be used with the lime, and thus keep many insects at bay. If the wall were very white, the reflection of heat might be too powerful for plants near it. We have done common walls as above, and then given them a good coat with anti-corrosion. You cannot, however, wash anti-corrosion as you can a wall well painted. We had a wall done with zinc paint some six or seven years ago, and it is as good as the day it was finished.

TRITOMA UVARIA (*Lincoln*).—What Mr. Beaton says to-day you will find has anticipated your question.

GRAPES SPOTTED BY GISHURST COMPOUND—RED SPIDER, &c. (*S. H. Guernsey*).—We have no idea that the Gishurst Compound contains arsenic; and if it does not, then, after your Grapes have been so long exposed, we do not suppose you need be afraid of eating the fruit; but it is of little use applying such solutions when the fruit is so near being ripe. The best plan is to consume the fruit, and then clear the house of insects. Did we attempt otherwise, we would have sponged the foliage, instead of spattering all the fruit from a syringe. People who never tried it have no idea how a man or boy with active hands can quickly sponge a whole house, if needful. The whitening of the glass would be of little use in extirpating the spider, farther than helping to keep the house cool whilst you plied the syringe. If you have a back wall to the orchard-house, painting that with sulphur will do good when the sun shines upon it. You may use the Gishurst Compound as you propose with advantage, but rather weaker than otherwise. We would just as soon prefer sulphur water, made as often stated, and towards evening at a temperature of 100°. Dryness at the roots is a fertile source of mildew in all trees under glass. Dryness at the roots, and a dry atmosphere combined, are the very conditions most suitable for the health and strength of the red spider. A damp atmosphere is their abomination. If once they have fairly fixed their habitation, no one or two applications of Gishurst Compound, or any other composition, will effectually remove them, as myriads of young and eggs resist all your efforts; and, therefore, in a few days you will get a fresh supply, even though you destroyed every perceptible insect to-day. Prevention here, as in most cases, is better than cure. There is no arsenic in sulphur vivum. We prefer, in all cases, using flowers of sulphur. We think your Geranium is likely to be useful; but you should send some

trusses and foliage carefully packed, or exhibit it at a horticultural society, where its qualities can be compared and tested.

LOPPING FOREST TREES (A).—There is no art so little understood as the pruning, or, as you call it, "lepping" of forest trees. In former numbers of *THE COTTAGE GARDENER* full instructions have been given how to perform this necessary, but oft-neglected, operation. However, we may briefly state, in answer to you, that the best season is when the trees are at rest. Many trees this year have already made their growth, and may, in that case, be pruned now; but in general it is advisable to defer the operation till the leaves have fallen off. Pruning of forest trees should be done whilst they are young, and no other instrument used than a good, strong, sharp knife. If, however, the trees have been neglected pruning in their youth, then large branches must be cut off with a saw, the teeth of which are set wide enough to cut green wood easily. In all cases we would advise pruning close to the stem, leaving year-old shoots to draw up the sap. Make the cuts smooth, and when the branches are large, and the wounds consequently large, cover the cut with good paint the same colour as the branches. This will keep out the wet till the new bark grows over the place, and the trees will then suffer less by the severe operation.

POULTRY AND BEE-KEEPER'S CHRONICLE.

OVER-FEEDING.

THE queries we constantly receive and answer, and the result of much poultry correspondence, only confirm us in a long-formed opinion, that nothing is so fatal to poultry as over-feeding, and the constant endeavour to meet requirements, and to supply wants that exist only in the imaginations of the owners.

Nature after all should be our guide; and we should, as much as possible, assimilate our treatment to the probable condition of our *protégés*, if they ran wild. As fowls have long since ceased to do so in this country, we must look to game. They seek long for their food, they find it grain by grain, morsel by morsel. A keeper who rears hundreds of tame pheasants feeds them but sparingly after they are grown up and have left the hen. But he feeds a little, night and morning; and when his whistle is heard, they come with such certainty, that he can count them day after day, without missing one. When the weather becomes severe, and the stubbles are bare, he places food in convenient spots for them, if necessary. The necessity is, if it is certain there is nothing for them to get. These birds are always in high condition, and disease is seldom known among them. The fact is, they are obliged to depend partly on themselves, and they are not over-fed. In the search for food, they find numerous things, insects, scraps of herbage, small stones, &c., that are essential to health, and a little pricking of appetite makes them diligent in seeking.

Now, most poultry-runs have a little grass, some have shrubberies or plantations, all have a few shrubs. Keep your fowls so hungry that they will seek food here, turn over dead leaves, scratch every inch of soil, and scan every blade of grass with the eye of an epicure. When there is no visible cause for the refusal of food, it is because they are over-fed.

Instead of tempting with novelties, withhold all feeding until they meet you at the door in the morning.

We should like to write up in every poultry-yard—

"No fowls are healthy unless they are hungry."

"No fowls should be fed unless they flock around the feeder, and jump to the vessel that holds the meal."

"No more should be given when two or three cease to run after the same piece."

CRYSTAL PALACE POULTRY SHOW.

BEFORE our next number appears the Crystal Palace Show will be almost concluded. We feel it our duty to remind our readers of the fact. We are happy to inform them the entries are 102 in excess of any previous Summer Show. The most numerous classes are Dorking, Game, and Hamburgh, each numbering more than sixty.

We hope the attendance will keep pace with the increase of exhibitors, and the praiseworthy exertions of the managers.

PLUMAGE OF SILVER-GREY DORKINGS.

"I SEE in the last number of *THE COTTAGE GARDENER* that, in speaking of the proper colours of the Silver-grey Dorkings, you say, 'The cock should have a perfectly black breast and tail.' Now, I find in a very excellent authority—none other than in 'Fowls,' by Bailly—these words, in giving the proper colours of Dorking:—'Black breast, or black spotted with white. Black tail, or mixed with white.'—J. B.

[The Silver-grey Dorking did not exist as a class when Bailly's book was written. It is a recent introduction into the prize sheet. It is a class intended only for colour, and was formed because those birds, fitted for competition in it, and previously known as Lord Hill's colour, lacked the size necessary to success in the open classes. Any colour is admissible in general competition, and the largest birds will mostly be found to be those that are speckled on the breast. In this class size is essential. In the Silver-grey class it is most desirable, but it must be joined to perfect purity of colour and feather, which are more important.]

SELECTING AND FEEDING SPANISH CHICKENS.

"I HAVE a brood of Spanish chickens from some of Mr. Fowler's best eggs, ten in number. I do not wish to keep the lot, but only a few of the best. They were hatched on the 7th of June. Your kind assistance for me to select the best will oblige.

"What food should they have now? and what is the best treatment for them?"—W. H. GREEN.

[Your chickens are too young for the most experienced in the breed to give you an opinion as to their merits. The only safe weeding will be to draft any cocks that show falling combs, which they often do even at two months old. You cannot judge your pullets with any hope of doing so judiciously till they are six months old, and even then you are liable to error. The cocks will show what they will be at twenty weeks.

Feed them well with ground oats, slaked with water—or milk if you have it. If they are safe, let them roost out, and watch them that they never go back. If they appear to do so, give them some bread and strong ale twice every day.]

CHICKENS CROP-BOUND.

"MY Dorking chickens have become affected with a disease for which I should feel obliged if you would suggest a cure. The first appearance of disease consisted in the comb becoming of a dark purple colour, shortly followed by dullness of the bird, which refused all food, gradual weakness, and death. The crop, in one or two instances, was hard, but in others softish; but when pressed appeared to retain the impression of the fingers as if it were filled with putty. In some cases the legs became much the same colour as the comb; and the disease appears to be infectious, as each morning fresh cases make their appearance. Three died this morning, and on being opened the gall and liver were considerably enlarged, and the latter of a dark, unhealthy appearance. The bowels were completely empty, but seemed somewhat distended. I may mention that oatmeal and bran are what they have for some time been fed upon. A few days since, however, I found some raw rice thrown down to them, which I forbade, and, I can hardly believe, could account for so malignant a disease."—A. F.

[There can be no doubt that your fowls all die crop-bound, and that would explain every symptom you describe. These are, again, accounted for by the food. There is no power in the crop of a fowl to empty itself if over filled. Oatmeal is good food, but the bran is unnecessary, and, therefore, hurtful. Raw rice is worse. When the fowl has been tempted to over-feed, it seeks relief in drink, and then rice, bran, and meal, form a paste the crop cannot discharge. Consequently, nothing passes into the bowels, the unnaturally distended crop interferes with all circulation, and causes the blackness of the comb.

Take such as are least affected, pour warm water copiously down the throat into the crop. Loosen the contents gently with the thumb and finger, and when they are softened give a *table-spoonful* of castor oil; continue this treatment till the crop is empty. Then feed for a day or two on gruel, or meal mixed very slack, and the recovery will be rapid.

In any apparently hopeless case, you can, if you will, perform a very simple operation. Pull off a few of the feathers in front of the crop, make an incision with a sharp, small knife, and take out the contents. Wash the crop with warm water. Then sew up the crop with coarse thread. Afterwards draw the outer skin together in the same way. Rub the suture with healing ointment, and give the patient gruel, adding thereto a little strong beer for the first three days, in the proportion of one *table-spoonful* of beer to four of gruel. A fortnight generally makes a perfect cure. We are also bound to tell you, there is no doubt your fowls are *very much over-fed*.]

WEAKNESS IN PIGEONS.

"I HAVE some Florence Runts, which have, within two or three months, hatched a pair of young ones, and the hen has now hatched another pair. The first pair are troubled with some complaint which seems to deprive them of the use of their legs and wings. They lie about the yard quite helpless. Food is put to them, and they eat pretty well. Will you inform me if there is any remedy? and what I can do to prevent the second lot from being infected, if it is infectious? I have had the old ones three years, and they did not build all that time, but this season they have done so. We feed them on maize, tares, and scalded wheat (old)."—THOMAS PAGE, jun.

[I have no practical knowledge of the complaint from which these young Pigeons are suffering; but it seems like leg-weakness in Shanghai fowls, and probably arises from their having outgrown their strength, or that their food is too stimulating and not containing sufficient bone-making material. I would advise a change of food; to discontinue the maize and scalded wheat, and to substitute small beans and barley. Let the Pigeons have old mortar or broken oyster-shells to pick up, and put some chalk in their water. I do not think the disease is at all likely to be infectious. Possibly the following tonic may be useful:—"Dissolve half a pound of sulphate of iron, and one ounce of diluted sulphuric acid together; when dissolved add two gallons of spring water, and let it stand twelve or fourteen days, when it will be fit for use." "Dose.—A tea-spoonful to one pint of water given as drink twice or thrice a-week." If Mr. Page try it, I should like to know its effect.—B. P. BRENT.]

BEE-KEEPING IN DEVON.—No. XI.

AN OMINOUS SILENCE—A CATASTROPHE—BRITISH VALOUR TRIUMPHANT—ATTEMPTED EXPLANATION—A FORLORN HOPE—POLLEN AND PROPOLIS—AN EXAMINATION AND ITS RESULTS—A PROPHECY—PROSPECTS OF THE COLONY.

SHORTLY after four the next morning I raised the hive containing, as I imagined, the amalgamated bees, and placed it on its stand. An ominous silence had succeeded to the roar of battle, but I was, as yet, unconconscious of the mischief that had been done. There was only sufficient light to enable me, imperfectly, to distinguish a dark mass which remained behind, and which I set down to the account of the warm summer night having prevented all the bees from ascending. Gathering the corners of the cloth together with the intention of placing it in front of the hive, I was startled at perceiving the dark mass gravitate slowly towards the centre. The bitter truth now flashed upon me. Last night's uproar was at once accounted for, and I no longer doubted that I beheld the victims of a merciless encounter. Hurriedly conveying the cloth to a more open space, I mournfully examined its contents. There, beautiful even in death, lay my much-prized "yellow Ligurish" bees,* some stark and motionless, others struggling in the last agonies produced by the fatal poison of their opponents' weapons. Never was British valour more completely triumphant—never were foreign invaders more ruthlessly expelled.

Great was my mortification at this unfortunate and most unexpected catastrophe. I had driven a strong stock only ten days previously, and mited it to an artificial swarm with the most perfect success. All my autumnal unions last year were effected in the same manner, and all turned out well, although in no former instance had I taken the trouble to remove the supernumerary queen. That some of the strangers were bees of a different species offered no solution of the mystery, since the great majority differed in no respect from their English conquerors, and all suffered the same fate.

The only explanation which occurs to me is, that in effecting unions of this kind there should be something approaching an equality of numbers on each side. In the present instance, the disproportion was, probably, too great: at least ten to one. The English swarm weighed 2½ lbs., which would represent from 10,000 to 12,000 bees, whilst their foreign antagonists only professed to number 1000 in the first instance, and had, doubtless, been considerably weakened by their five days' confinement and travelling.

One chance yet remained. It was possible, though it appeared scarcely probable, that the vengeful weapons of the furious

* One of the specimens sent to THE COTTAGE GARDENER last week was of this kind, but the distinctive "brick-red" colour entirely disappears soon after death.

Britons might have respected the sacred person of the foreign sovereign, and that, having triumphed over her natural subjects, they might elect to transfer their allegiance to an alien queen, as soon as they had ascertained that their own monarch was irretrievably lost.

Never did Gaelic clansman or Saxon serf search more perseveringly for the body of his slaughtered chief, or thane, than I did for that of her Ligurian majesty. Cloths were spread around the hive, and every fresh-looking dead bee that could be found in the garden was picked up and carefully examined. One hundred and sixty of "the yellow Ligurish race" were discovered, and many hundred common bees, but no queen.

Somewhat re-assured by this unsuccessful search, I turned my attention to the bees themselves; but here I found myself completely at fault. Rainy weather had set in, and either from this cause or from discouragement, none showed outside. At length on the fourth day after the arrival of the foreigners, I saw three bees convey pollen into the hive. This revived my hopes, which were still further strengthened the next day by perceiving upwards of a dozen loads of pollen and some of propolis. The day following was wet; but the morning after, being fine, I determined upon transferring the bees to another box, carefully examining every comb with the view of discovering if any eggs had been laid, and, if possible, obtaining a view of the Ligurian queen, supposing her to have survived the massacre of her subjects.

The first comb examined was one which, when placed in the box, was perfectly empty, but which now contained a quantity of honey brought by the bees from other parts of the hive. The reason of this was soon evident. In the next comb some hundreds of eggs had been deposited; to accommodate which, the bees had doubtless removed the honey. This discovery redoubled our anxiety to see her Italian majesty; but she was coy and did not show herself till the last comb was extracted, when we had a perfect view of her. She turned out to be a true "yellow" queen, her abdominal rings being of a bright gold colour. In other respects she did not appear to differ much from ordinary queen bees, although Mr. S. L. Fox, who assisted me in this last operation, thought her rather smaller.

It will be very interesting to watch the gradual fulfilment of the prophecy which accompanied the "little cassette," and which was couched in these words "So in thirty days all people would become yellow, and the English bees by-and-by shall become dead." By noticing the period when the ordinary description of British bee finally disappears from the hive, some well-founded inference may be drawn as to the duration of life of the working bee.

Although not one of her foreign companions appears to have escaped, I think it will be admitted that her Ligurian majesty commences her English reign under favourable auspices. She has full 10,000 loyal British subjects,—all, apparently, young and vigorous, not a ragged wing to be seen amongst them. Pollen is now (17th August) being carried in with great rapidity; and if her fecundity be nearly as great as is represented "making every day 1000 to 2000 young ones," there can be little doubt of the prosperity of the colony. That it has an ample store of food for use during the approaching winter, will, of course, be the first care of—A DEVONSHIRE BEE-KEEPER.

P.S.—It is not without reluctance that I again refer to Mr. Wighton; but, as I perceive, he reiterates his statement that "bees never collect pollen alone," I am induced to direct his attention to the circumstance, that two-thirds of the bees working from this artificially-formed stock, return with full loads of pollen, at a time when, from lack of honey in the flowers, my hives in this locality are rapidly losing weight. Whilst thus stating a fact in opposition to Mr. Wighton's fallacy, I may be excused for reminding him that assertion is not argument, nor will reiterated assertions supply the place of experiments and facts.

OUR LETTER BOX.

ORMSKIRK POULTRY SHOW.—"In your report of the Ormskirk and Southport Poultry Show, the first prize for Golden-spangled Hamburgs is stated to have been won by Mr. S. H. Hyde. This is an error, however; as the silver cup for the best pen of Hamburgs of any variety was awarded to my pen of Golden Moonies exhibited in this class."—W. C. WORRALL, *Rice House, Liverpool.*

INCUBATOR (*W. W. Copeland*).—We do not know where you can purchase one. There were two makers, Mr. Cantello and Mr. Minasi, but we are not aware of their residences. If you advertised for one, probably you would have the offer of more than one, second-hand, as bargains. Our correspondent requires an Incubator to send to New Zealand, where even eggs are selling "for three shillings a-dozen."

WEEKLY CALENDAR.

Day of Mnth	Day of Week.	AUGUST 30—SEPTEMBER 5, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock after Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
30	Tu	<i>Dianella ensifolia.</i>	29.709—29.637	69—39	W.	.01	10 af 5	51 af 6	18 a 7	2	0 36	242
31	W	<i>Hindsia longiflora.</i>	29.733—29.695	70—45	S.W.	—	12 5	49 6	34 7	3	0 18	243
1	Th	<i>Chironia serpyllifolia.</i>	29.718—29.654	70—35	S.W.	—	14 5	47 6	53 7	4	0 1	244
2	F	<i>Celosia cristata.</i>	29.851—29.684	68—38	S.W.	—	15 5	45 6	18 8	5	0 19	245
3	S	<i>Clethra arborea.</i>	29.801—29.727	74—60	S.W.	.02	17 5	42 6	50 8	6	0 38	246
4	SUN	11 SUNDAY AFTER TRINITY.	29.785—29.721	69—47	S.W.	.18	18 5	40 6	34 9	7	0 58	247
5	M	<i>Cobaea scandens.</i>	29.780—29.780	73—37	S.W.	.12	20 5	38 6	28 10	8	1 17	248

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 74.3° and 52.6°, respectively. The greatest heat, 93°, occurred on the 3rd, in 1856; and the lowest cold, 33°, on the 31st, in 1833. During the period 130 days were fine, and on 94 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

BALSAMS.—Give them a good watering when they show indications of drooping; but be cautious in watering when the least stagnation appears, as saturation will be death to them.

BULBS.—Pot Hyacinths and other such bulbs for forcing. When potted, to be placed in a dry, cool situation, as advised in the early part of the month, and covered with some porous material—such as coal ashes, old spent tanner's bark, coarse sand, or any other material that will serve to keep the roots not only cool and unacted on by atmospheric changes, but which, from being moderately damp, will not abstract moisture from the roots, but keep them uniformly and evenly moistened. The Cape bulbs, if obtained now, may be had in flower at various periods throughout the winter and early spring. *Amaryllis Johnsoni*, *vittata*, and many other varieties, are splendid. *Ornithogalum*, both the white and orange-flowered species, the free-growing species of *Ixia*, and the varieties of *Sparaxis tricolor*, are desirable plants that may be easily bloomed by gentle forcing.

CALCEOLARIAS (Herbaceous).—Pot off seedlings into small pots, and keep them close in a frame for some days. Put in cuttings of the best kinds; they will strike readily in a common frame.

CHRYSANTHEMUMS.—They should now be stopped for the last time, to produce a late succession of bloom.

CLIMBERS.—Be careful to train the shoots, that the trellis or stakes may be furnished and clothed with foliage and flowers from the rim of the pot upwards.

FUCHSIAS.—To have a late bloom, cut back about half of the young wood, trimming the plants to handsome shapes. If placed or plunged in a little bottom heat they will break again, and continue blooming till Christmas.

LILIUM LANCIFOLIUM.—Supply them cautiously with water, as advised for Balsams, and shade the flowers from bright sunshine, to prolong their beauty. When they have done blooming, to be removed to the foot of a south wall or fence to ripen their growth. Water to be given sparingly until their tops show signs of decay, when they may be laid on their sides till potting time. The same treatment is recommended for *Gladioli* and plants of like habit.

STOVE AND ORCHID-HOUSE.

Some judgment will now be necessary to arrange the plants that are finishing or have completed their season's growth in the coolest part of the house, where they should be freely supplied with air, and rather cautiously and sparingly with water. While others in free growth should be encouraged with warmth and moisture by giving but very little air and a liberal supply of water during the present very fine sunshiny weather.

FORCING-HOUSES.

When the fruit in the early houses is gathered, the great object should be to ripen the wood. Although the No. 570.—VOL. XXII. No. 22.

weather is most favourable for the purpose, a certain degree of attention is necessary to be given by exposing them to light and air, and preserving the leaves from injury, as it is upon their healthy action that the future crop depends.

CHERRIES.—Trees in tubs, or large pots, if intended for early forcing, to be removed to a cool, and plunged in an open airy, situation, to continue the regular root action, upon which much of their future success will depend.

FIGS.—Withhold water from the borders where the second crop of fruit is ripening. Trees in tubs, or large pots, intended for early forcing, to be treated as advised for Cherries.

PEACHES.—If mildew attack the trees before the leaves have performed their necessary functions, dust the affected shoots with sulphur. Trees in pots to be treated as recommended for Cherries.

PINES.—Take advantage of the present fine weather to encourage free growth where it is desirable. Plants swelling their fruit to be supplied occasionally with clear liquid manure. The succession plants to be supplied with water at the roots, as inattention to that particular during the present hot weather is very likely to cause some of the plants to fruit prematurely.

STRAWBERRIES.—The stock intended for forcing to be carefully attended to; to be kept free from runners and weeds; and, when necessary, to be liberally watered. Free exposure to sun and air, and a little weak liquid manure, will assist to produce stout healthy plants for forcing.

VINES.—When the fruit is ripe, give air freely, and keep the house as cool and dry as possible. Stop laterals in the late houses, and expose the foliage to light, to make it as healthy and vigorous as possible. Vines in pots to be treated as advised for Cherries.

WILLIAM KEANE.

CALLS AT NURSERIES.

MESSRS. E. G. HENDERSON AND SON, WELLINGTON-ROAD NURSERIES, ST. JOHN'S WOOD, LONDON.

TEMPTED by the report of a new bedding plant, "a thorough good bedder," I visited this nursery last week to see it and to judge of it on its own merits, with my mind and conscience purified like the virtues of jurymen from all heresay anent the new bedder.

It is, in my estimation, the very best autumn bedder we now possess of the colour. It grows closer to the ground than any of the best Verbenas; it wants no training; it propagates as easily as any plant in the garden; the flowers stand so closely to one another that one could hardly see the leaves; and every individual flower is larger than the largest Zinnia-flower you ever saw. Can you now guess what it is? If not, I may say that the leaves are two or three inches long, not over half an inch across, quite smooth and shining on the upper side, and as white and soft as a satin shoe on the under side. Can you make it out now? Well, we must go closer yet. It

is an orange-yellow flower, a composite, or compound flower, with a yellow Daisy-like centre; the outside ray of petals being also yellow, with a purple ring at the bottom of the petals, and a white spot on the purple of every petal: very handsome indeed, and the genus has been a great favourite as long as I remember.

It is a new *Gazania* called *splendens*, the best bedder of all the family and its relations; a five-shilling-piece could be placed inside a flower of it wide open, and nothing seems to be more free of bloom. It will prove a benefit to such places as Shrubland Park, as it will keep in pots till it is in full flower, and till some earlier flowering-plant is out of bloom, and this to make the next change. It will be in first-rate style from July to October; and everything about it is quite genteel and most promising. The bed of it I saw was between forty and fifty feet long, and four feet wide, and the whole was one sheet of bloom, and not a blossom was half an inch higher than another; the whole being under nine inches from the ground. The only drawback to this genus for bedders is, that on cloudy days the blooms do not open.

Upon a rough calculation, Messrs. Henderson have 10,000 plants of *Gazania splendens* ready to send out now, so that any one may see it yet this season, and buy plants enough of it to make a large bed next season, to come on after a Tulip-bed, or some late bulb, or late spring-flowering bedder.

It was also a good time to see all Messrs. Henderson's ways of bedding, bordering, and walling climbers for a first-rate flower garden. But before entering on their beds, I shall tell what will surprise some very good gardeners on the outskirts of the shooting-grounds throughout the three kingdoms. Large numbers of bushes, and of half-standard bushes, averaging thirty inches high and thirty inches in diameter of heads, of *Bouvardia triphylla* and *splendens* with their hybrids; also *Bouvardia longiflora*, at that age and size, are there one mass of bloom the whole season. At the beginning of the bedding system these were the lowest bedders we had.

Bouvardia leiantha, same size and bigger, is just coming into enormous heads, numbers of bloom; then cut round the roots, like as for lifting a Chrysanthemum, any time before the 20th of September, and the first dull or rainy day up with them, and pot them, and they will bloom, in-doors, the whole winter. All the gardening in the world will not get them half so good by any other method, or by all the older ways put together, and the *Ixoras* are not one whit finer in summer than these are in winter.

Another winter plant to be done the same way—that is to say, to keep it till it is too big for your room, like any *Bouvardia*, to stump it in in the spring for cuttings, or for keeping into some given shape, to plant it out the beginning of July, and when all the tops are just like the tops of all good *Laurustinuses* are at this moment, prepare the roots for lifting, and pot them the same time as the *Chrysanthemums*, *Bouvardias*, *Lantanas*, and all others, the subjects for the new style of going a-head at “express” speed, and that other is *Clerodendron Bungei*. That very *Clerodendron* is anybody's plant, as hardy as a *Hydrangea*, and may be grown and bloomed on the same model, single stems six to nine inches high, and one “prodigious” head of bloom; or the plant up to nine feet high and nine feet through, after the manner of Her Majesty's *Laurustinuses*, and to bloom from the end of September to the first of March just as thickly as the *Laurustinuses*. And like it, all *Bouvardias* and *Lantanas*, with this *Clerodendron* and others, which we shall hunt out, may be made into standards and half standards, which, the older they get, the more they are pruned in and stumped, like red and white Currants, or like red and white Geraniums, on Harry Moore's plan, the more they are ready to plant out in June; and the more bloom they make, and astonish such people as had only seen them on the common puny pot culture of former days. Of all the

hybrid *Bouvardias*, *Hogarth* is my favourite for a half standard, the stem to be not more than a yard high, and the head a yard or four feet in diameter. All the shoots forming the head to have been so stopped in former years as now to present a head just like the head of a *Laurustinus*, which would bloom out in the border from July to October, just like *Ixora Javanica*.

Then the *Lantanas* to be done nearly in the same way; but for a change I would have them managed like scientific-formed pyramids—no snekers from roots or collar, a handle of six or eight inches of hard and disbudded wood to all my pyramids; the bottom branches next the handle to be the longest, and the pyramid to be a blunt, rounded, and redneck top, as high as my head-room would allow. The *Bouvardias* would also make excellent pyramidal plants. All the highest and novel-coloured Geraniums of the *Nosegay* and *Horseshoe* breed, and all *Fuchsias*, I would have in moveable pyramids with short handles, and standards and half standards of *Fuchsias* besides. At the end of the season they would all need to be very closely pruned in, and to be kept half dry all the winter, and very cool; if the frost is barely kept from them it would be enough. My word for it, they are worth the ambition of the best gardeners, and would make a “show” at home the whole season, and be the talk of all visitors who never see such thrifty gardening at regular shows anywhere.

Out of two dozens of kinds of *Lantanas* which I saw bedded out, in specimen plants, at this nursery, I made a selection of six kinds, and ordered one plant of each for the Experimental; but as I make a rule of never pressing my fancy on my readers, unless there is an artistic or a scientific reason for so doing, I shall merely give the names of the kinds, leaving a score more kinds, and all of them distinct, for others to choose their fancies. They are all of the habit of *Lantana crocea*. *Boule de Nieve*, a pure white, and half dwarf; *Flava lilacina*, yellow centre and lilac sides to the truss; *Marquis de Laporta*, and *Xanthina superba*, as free growers as the old *crocea*; *Imperatrice Eugenie*, a lovely half dwarf bush with lilac and pale white flowers; and *Lutea superba*, the best yellow.

Habrothamnus elegans submits to the same mode of training and pruning, and stands out on the border, which has suggested this recommendation of a new style of exhibiting bedding plants on the mixed border; for, recollect, all the *Bouvardias* and all the *Lantanas* make flower-beds just in the manner as *Verbenas*, and bloom as freely, and they strike just as easily in the spring or autumn.

Chloris radiata, two kinds of, in mathematical arrangement of bloom, as at the Experimental, and as stated already from hence. But now I have got to the bottom of the story. This singularly beautiful or curious Grass is a native of the Blue Mountains, or some such, in Jamaica. Like Barley and Wheat, it is an annual; but, like them, you may sow it in the autumn, biennial fashion, keep it from the frost, which is all it needs, and turn it out at bedding time, and by the middle of August the harvest of it is ripe, and very curious indeed. After counting the cost, keep it for placing among other “everlastings,” to help out the glasses in winter, and be thankful for a skeleton umbrella multiplied by the number of straws. It may also be a spring crop, sown with the blue *Lobelias*, and treated like them to planting time.

Pylogine suavis is a new, fancy, fast-growing, sweet-scented, genteel-looking, soft-wooded, summer climber, which was mentioned three or four years back from Berlin, by “Our own Correspondent” Karl. The Experimental is indebted to Mr. Thomson, of Ipswich, for this novelty; and a large space on the boundary wall is covered with it, “running” as fast as a conrier, and looking as fresh as the first growth of spring—every leaf quite shining, and the size of a Gooseberry leaf; the habit being after the *Briony*, with tendrils to hook by, and the whole surface of the plant literally studded with

stud-blooms—that is, like the shoulder of a bunch of Grapes taken off in bloom-bud; the blossoms are a little bigger than in the Grape Vine, but they are of exquisite and very peculiarly sweet scent, like some of the finer scents of the perfumers, in the evening. Mr. Thomson sent our plant, a fresh-rooted cutting, in a letter, and it has run about one of my experimental Vines “like wild-fire;” but a dirty-brown grub, which comes out at night, and gets just within the surface of the soil by day, has cut it right through at the collar; and, unless it come from the roots, I am as bad off as Jonah was, and I must never be without it, as, of all the soft-wooded climbers, it is the most lady-like in all its ways.

Among other novelties was a bed of a new *Nuttallia*, a genus that is little known. The old *Nuttallia grandiflora* is one of the best old border plants, and one of the most difficult to keep; but this will be an easy thing, as it seeds freely, and is not more than a biennial. The plants were a yard high, very branchy, and full of blooms—violet and crimson colour, with a white bottom. If the flowers of *Chironia frutescens* were cupped, and dashed with a tinge of purple, they would give some idea of this beautiful thing; but it will be best to prove it in patches, like patches of *Coreopsis*.

There is a blue Clematis here, which is as sweet as the common white Clematis and quite as flowery: and as I had a mind for a long time to tell of a way I once proved very much like the right arrangement for a rustic basket, and as I see I must put off a general report of this nursery for another week, I shall here explain what I mean while the iron is hot. This rustic bed is to be the largest of them all. It may be a circle or not, according to the situation or the fancy. Ten feet in diameter is the smallest size, and thirty feet through a comfortable bed. The edging must rise one inch above ten inches for every foot the bed is over ten feet through: the edge for a twenty-feet bed would thus be twenty inches high. All these edgings to be of rubble-work and Ivy—that is, loose stones or loose brickbats, bedded in the soil of the bed, and covered outside with Ivy. Let us say a twenty-feet-through bed, to hide something, or to draw the attention of a stranger from something else. The edging in Ivy twenty inches, or a little more or less high; but the soil inside the Ivy not to be so high as the edging by nine or ten inches, but the centre of the bed to rise twenty inches higher than the top of the Ivy. Just inside the Ivy have a platform of open rustic work just two feet across; drive down stumps, and nail small rods to them under this platform; and in the centre of it plant young healthy plants of this newish sweet-scented blue Clematis at four feet apart—*Clematis azurea odorata*; take up their heads between the rods, and train them all over the platform as thick as the Ivy is on the side-edging; and the more the young shoots are stopped the first year the more numerous they will be; and the more they are pruned back in winter, and stopped till the end of May, the more bloom they will give in the autumn; and the more bloom the more scent. After a while the rustic frame goes to the dogs, like all rustic work; but by that time there will be such a “hassoek” made with the interlacing shoots of the Clematis, that nothing could displace so cleverly as a battle-axe. But battle-axes are only seen in museums with us; therefore the chances are that this ring of Clematis, now nearly three feet across, will last without any more support as long as the Ivy will. The centre of the flowers of *Clematis cærulea odorata* are as white with stamens as those of the white Clematis itself; therefore a mixture of blue and white will admit almost any of the bedding plants; and the centre of the bed or circle, say a space of fourteen or fifteen feet in diameter, is to be planted on the common plan. It was the old white Clematis that I used for this basket-bed; and all the middle was one kind of scarlet Geranium. It was on a square piece of ground; and there were four little circles, one in each corner, and a white Clematis in each, and a pole

stuck in the centre of the bed, the top of it being ten feet from the Geraniums. The four Clematises from the four corners rose seven feet on stakes, and then festooned over to the centre pole.

D. BEATON.

FRAGMENTS.

BONAPARTEA JUNCEA.

THIS beautiful Rush-like plant, known also as *Agave gemniflora*, and *Littæa gemniflora*, has for some time been a striking object at Luton Hoo. The tapering fishing-rod-like flower-stem last week was above twelve feet in height, producing hundreds of its green-tinted-with-yellow flowers, while on the lower part of the stem the seed-pods or capsules showed signs of swelling and perfecting the seed. Now that there is a growing interest for fine foliage, this plant may become more common. Few things could look more graceful in a vase, with its Rush-like foliage forming a cone in the centre, and the lower leaves or branches hanging down gracefully to the base of the vase. This elegance in the foliage must ever be the principal attraction, as, hitherto, the plant has flowered but rarely. It was introduced from Peru in the beginning of the present century, and Mr. Fraser thinks that the present plant can be little less than fifty years old. He has known but little difference in its appearance, as respects health and luxuriance, for twenty years. Until it flowered I perceived no difference in its appearance for six years at least. It has all along, I believe, been treated as a greenhouse plant. Whether by growing more freely at certain periods—in other words being treated as a tropical plant at one time, and allowed a season of comparative rest at another, it might be made to bloom and fruit somewhat regularly, previous experience does not allow us to determine. If such a thing could be done, it would make a fine neighbour for gigantic plants of the *Lilium giganteum*. At present we must value it chiefly for its very graceful foliage, and as a nice contrast to fine plants of green and variegated Agaves, to which section of the Amaryllids it is most closely allied. During the summer months we believe it would be quite as much at home as the American Aloe out of doors. I am not well up in the history of the plant blooming in this country. A plant with a flower-spike of much the same height flowered with Mr. Knight, at the Exotic Nursery, King's Road, Chelsea, London, in the winter of 1826.

On the Continent the plant several times has thrown up a spike of about double that height. One plant is spoken of as having flowered twice. Whether that took place in the identical plant, or from a sucker from the original, grown upon the Hamiltonian system in Pine culture, we are left in doubt. We know that in the Agave the same plant flowers but once, though, no doubt, the suckers thinned out would receive much strength from the old stem and leaves. After all, at present the most graceful foliage of the plant presents its chief attraction—an attraction which has not been prized at all in proportion to its beauty, if we judge from the comparative rarity with which the plant is met. In advanced styles of artistic gardening its presence would be very telling.

PORTULACAS SPORTING.

Instances have been already given of the comparative hardness of seeds over plants, in the fact that seeds of these have come up in the open ground, self-sown, more thickly than if the ground had been daubed with *Spergula pilifera*. When the different varieties, however, are near to each other, it is next to impossible to keep the varieties true to colour. Last season, two borders of these at Luton Hoo were among the finest sights a lover of colour could witness on a sunny day. There were six or seven distinct colours in as many different broad runs. The seeds were saved from the most distinct colours of each

kind or variety; were sown and planted out again on borders in a different place, under the impression that the same colours would be equally distinct in lines; but the result has been, though these borders are a dazzling spectacle in bright sun, all the care of separating the seeds and separating the plants has gone for little or nothing, as hardly one row or part of a row has come true to the anticipated colour. So thoroughly do flies, bees, and breezes hybridise and mix them, that, knowing the care exercised in the present instance, I could hardly expect to see a desired colour reproduced truly, unless the plants grew at a considerable distance from any other variety. Even then a gauze net over them would almost be essential. Seedsmen may, therefore, send out often different colours from that they themselves anticipate, even when exercising more than ordinary care.

ZINNIAS.

I introduce these too-neglected beauties, for what can be more rich and beautiful, either in a bed or a flower-glass, than the brightest colours of these flowers, for showing the same fact? Last season I had many extra fine blooms of various shades of scarlet, white, yellow, and violet or purple. These were saved and marked for seed. The seed was kept in separate bags, sown accordingly, and the plants turned out into beds carefully, so as to present rows of contrasting or shading of colours. I might have saved myself all the bother, mixed all the seed together, and then taken the plants as they came. I then could not have had more thoroughly mixed beds than I now possess; with many fine flowers, it is true, but such a hodge-podge as to delight those only who look upon mixture as synonyms with variety. Some good folk mix and mingle so much artificially, that they seem quite astonished if a friend should hint that this mixing produces sameness and not variety. If the rows in the present case had been of different colours, there would have been more than mixture—viz., variety and evidence of design. I fear, that as in the Portulaccas, we shall never be sure of securing the desired quality and colour in a flower from its seeds, unless the plant is removed to a distance from all others, or kept from being hybridised with other pollen.

Most varieties of flowers raised from seed require this care, and some more than others. There is a small dwarf orange Marigold, a good substitute in some cases for *Calecolarias*, that almost always comes true in habit and colour from seed. I have saved seed from the most beautiful French and African Marigold flowers, and have had a good portion of single and semi-double flowers in the seedlings, especially if any inferior flowers were allowed to remain at all near them. Success will be more certain when every secondary or inferior flower is removed as soon as it opens.

R. FISH.

FRUITS IN GENERAL: THEIR POSITION IN SEPTEMBER.

THIS is a most important month, both as concerns the produce of the present year and that of succeeding crops; and although we have all been somewhat disheartened as to certain crops of the present year, we must still hope on, even as our ancestors did in their day.

If we cannot always wage war successfully against inclement springs, we can, at least, put in requisition all those modes of practice which, being based on a knowledge of Nature's laws, can alone be depended on.

The remarks I intend to offer will refer principally to trained trees. It is quite unnecessary here to go farther. Any principle which will apply to trained trees will apply, in degree, to the most ordinary standard or espalier, modified, of course, by degrees of hardihood, modes of training, &c.

One of the first objects to be considered at this month

is the ripening of the wood; a second is the equalisation of the sap, so as to produce a due equilibrium in the trees; and lastly, to accommodate fruits hastening towards ripening.

And let not the ripening of the wood be deemed a mere cuckoo-cry because it is brought forward almost periodically. It is of so much importance in the eyes of those who try to remind the less-informed, that they feel it a duty to keep the subject alive; and such must be the case until these principles are, to all concerned, familiar as "household words." On this thorough consolidation depend the health, character, and utility of tender fruits. And what does all this mean? Why, that the tree has been treated according to its requirements, that by the fall of the leaf all Nature's processes have been fully carried on—nothing left in arrears. As there happen to be many late growths in fruit trees of healthy habits, it becomes us so to control these as to sustain a proper equilibrium in the trees. This we call equalising the sap.

Then we have to consider the immense value of a free access of sunshine to the would-be fruit-blossoms of the succeeding year. I begin to think that we have hitherto underrated the importance of this matter; and that the various processes of disbudding, stopping, &c., might be carried still further without in any way deranging the system of the tree. As for being so nervous about incipient fruit-buds losing their balance and "going to wood," why I can only say it is a somewhat morbid fancy. Certainly, in very gross trees we may meet with such things; but sorry is the condition of that operator who is afraid to act in the face of this bngbear. Such forget that, admitting this trivial affair, we obtain an equivalent of ten times the value. I have a lot of Pears which, having a thin crop, have been in the habit since May of producing much spray. I have had this stripped away entirely, or nearly so, this season; and on examination I find the fruit-buds exceedingly profuse, and in a most decided and advanced condition. Besides this, we want some sunlight to the fruit. This is admitted on all sides. So that here we have four or five reasons of high consideration for securing sunlight and subduing grossness. The reasons against such are as nothing in the scale; certainly must be allowed no preponderance. I may now point to a few of our fruits by way of illustration.

THE PEACH AND NECTARINE.—Of what possible benefit can it be that so many shoots are usually nailed to the wall during summer, as is the practice with many? Some cannot find pluck enough to do away with supernumeraries. Where rods or young shoots are required as leaders, or to fill given spaces, by all means let them be reserved. The rest, as I have before suggested, may be cut back to about three leaves. This, of course, is approaching a spur-system; but I have tried it for two or three years, and feel assured that it is the best plan of all others, for cool climates at least. Of course there will have been a liberal disbudding in spring; and where there is a profusion of shoots, and the disbudding is duly performed, the rest during summer may be fairly pinched back. Such spurs on growing trees will, of course, produce bunches of small spray afterwards; and this must be closely pinched early in September; after which, little more will be produced. But what about the terminal points of such trees? These may all be pinched on the spray, merely removing the growing points. In all cases of pinching, however, let this be an exception:—wherever any shoots are poor or show leanness, pinch not, but sniffer spray and all to grow to the end.

THE APRICOT.—The habit differs much from the Peach, and a somewhat different handling is required. One thing may be observed, that complete sunlight from midsummer until October is indispensable in securing the organisation of perfect blossoms for the ensuing year. Pinching back of fruit-spray must, therefore, be constantly resorted to. But with regard to the leading shoots a different policy should be observed. These

should never be pinched, unless for two reasons:—First, as robbers, or leaders, exceedingly gross—such may have their points pinched about midsummer, or, indeed, earlier. Secondly, when they are over-topping their bounds.

THE PEAR.—Here we have a most unruly subject. If any novice were to form a judgment of all Pears and their habits, modes of fruiting, and various vagaries that Pears are heirs to by merely having grown *Louise Bonne of Jersey*, and a *Beurré d'Amanlis*, he would think that folks made too much fuss about Pears. But their habits differ more, perhaps, than those of any one family of fruits. I alluded to severe operations on this fruit previously; and I can but repeat that, at this period above all others, it is necessary that sun light be secured to all portions of the trees. All rambling leaders of trained Pears may be pinched immediately: many, it is to be hoped, have received this treatment before.

Still there remains another material consideration as concerns September; and I would here put the question—"Have you any trees still infested with *in-sects*?" The Peach, above all, deserves particular attention at this period. The spider is very apt to get a-head whilst the wood is ripening; and at such period so robs the trees, that the bud is imperfect as to the ensuing spring, when we may hear lamentations about blossoms not setting, fruit falling off, &c. As for Apricots, Pears, &c., if they have scale or other matters, such had better pass on to the rest period, unless the Gishurst Compound can be applied. I have a high opinion of this preparation, and am observing its effects on a Peach tree infested with red spider. As for the aphid family, it is a mortal enemy to them; but it appears some have received injury, doubtless though excess in the use of it. I have had a trifling case or two, but, probably, owing to what is called experimenting. However, these things must not be played with; and as for fixing a precise amount for all cases, I fear, like most other things, there will ever be exceptions—so much depends upon the character of the vegetation to be acted on. Mr. Rivers and some other practical fruitists speak highly of it, and this looks well. I can only say that I live in hope of hearing of its being universally satisfactory. R. ERRINGTON.

HARDY FLOWERING HERBACEOUS PLANTS.

(Continued from page 289.)

ALETRIS—BLOODWORT.

Nat. ord., Hæmodoracæ. *Linn.* Hexandria Monogynia.

GENERIC CHARACTER.—*Corolla* funnel-shaped, six-segmented, wrinkled. *Stamens* erect, inserted into the base of its segments. *Style* three-angled. *Capsules* three-celled, many-seeded.

ALETRIS AUREA (golden Bloodwort). *Flowers* sub-sessile, campanulate; *corolla* in fruit rugose, very rough; *leaves* lanceolate-ensiform, acute. 1 ft. Yellow. July. North America.

A. FARINOSA (mealy). *Stem* round, mealy; *flowers* stalked, oblong-tubular; *corolla* in fruit smooth, mealy; *leaves* broad, lanceolate, mucronate. 1 ft. White. June. North America.

Very handsome, hardy plants, requiring a compost of peat, loam, and leaf mould to grow them well. They will grow in a shady place better than most other plants.

Propagated by taking off suckers or side-shoots with roots in April, and planting them in a nursery-bed till well established, when they may be transplanted into the flower-border in fresh compost, where they are to grow permanently. Strong plants produce flowers abundantly.

ALTHEA—MARSH-MALLOW.

Nat. ord., Malvacæ. *Linn.* Monadelphia Polyandria.

GENERIC CHARACTER.—*Calyx* double; outer divided into six or nine segments. *Capsules* many, one-seeded.

ALTHEA CANNABINA (Hemp-leaved Althæa). *Leaves* downy, rather hoary beneath, lower palmately parted, upper three-parted, lobes narrow, coarsely-toothed; *peduncles* axillary, many-flowered, lax, longer than the leaves. 6 ft. Purple. July. S. of Europe.

A. FLEXUOSA (flexuous). *Stem* rather flexuous, hispid; *leaves* cordate, rather seven-lobed, obtuse, footstalks long; *flowers* axillary, solitary, stalked; *petals* obovate. 3 ft. Pink. July. East Indies.

A. NARBONENSIS (Narbonne). *Leaves* downy, lower five or seven-lobed, upper three-lobed; *peduncles* many-flowered, lax, longer than the leaves. 6 ft. Pink. August. S. of Europe.

A. NUDIFLORA (naked-flowered). *Leaves* roundish-cordate, five-angled, or three-lobed, crenate, roughly pilose; *stem-petioles* and *peduncles* hispid; *racemes* bractless, naked; *flowers* in pairs; *petals* cuneate, emarginate. 6 ft. White. July. Siberia.

A. TAURINENSIS (Turin). *Leaves* covered with white starry down, three-parted; *peduncles* axillary, many-flowered, rather longer than leaves, straight. This is the *A. pubescens* of some. 4 ft. Red. August. Turin.

The Althæas are tall-growing showy plants, requiring a strong, rich loam, well drained.

Propagated by taking up the plants in April, and dividing them into rather large pieces, planting them immediately in freshened soil, where they are to bloom. The *Althæa rosea* is the Hollyhock, which is rather a biennial, but may be treated as a perennial by division and cuttings of young side-shoots put in sand, in pots, in a gentle heat, and kept in a cold pit through the winter. Many of the varieties, however, come true from seeds sown in July, and finally planted out in the April following.

ANDROSACE—PRIMEWORT.

Nat. ord., Primulacæ. *Linn.* Pentandria Monogynia.

GENERIC CHARACTER.—*Calyx* pentagonal, five-toothed. *Corolla* hypocrateriform, contracted at the mouth; limb five-lobed. *Stamens* within the tube. *Stigma* globose. *Capsules* five-valved, one-celled.

ANDROSACE CARNEA (flesh-coloured). *Plant* caulescent, pubescent; *leaves* scattered, linear, subulate, ciliated; *umbels* few-flowered; *flower-stalks* short; *calyx* turbinate; *corolla* segments emarginate, longer than calyx. 1 ft. July. Switzerland.

A. CARINATA (keeled). *Leaves* crowded, ovate-lanceolate, acutely keeled, on upper side ciliated; *seape* villous; *umbel* many-flowered; *calyx* five-cleft nearly to the base, persistent. 1 ft. Yellow. April. North America.

A. CHAMÆJASME (bastard Jasmine). *Plant* pubescent; *leaves* lanceolate, nearly entire, ciliated; *umbels* few-flowered; *calyx* turbinate; *corolla* longer than calyx. 1 ft. Pink. July. Austria.

A. LACTEA (milk-white). *Plant* caulescent, smooth; *leaves* grass-like, shining, entire, ciliated at the end; *umbel* few-flowered, flower-stalks elongated; *calyx* turbinate; *corolla* longer than calyx. 1 ft. White. July. Austria.

A. LANUGINOSA (woolly-leaved). *Plant* caulescent, procumbent, hairy; *leaves* scattered, obovate-lanceolate; *flower-stalks* terminal, elongated; *umbel* many-flowered; *calyx* tube ventricose. 6 in. Rose and yellow. August. Himalayas.

A. LINEARIS (linear-leaved). *Leaves* linear, mucronate, slightly pubescent beneath. 6 in. White. North America.

A. VILLOSA (hairy). *Leaves* lanceolate, entire, villous; *umbel* few-flowered; *calyx* ovate-campanulate; *corolla* longer than calyx. Pink. June. Pyrenees.

A lovely tribe of mostly early-blooming alpine plants, suitable for rockwork, or for a dry, fully-exposed border. They require half peat and half sandy loam. A plant of each species should be kept in a pot, and protected through the winter in a cold pit or frame.

Propagated by cuttings and division-cuttings. Take off young shoots in April or May, and plant them in sand under a bell-glass placed in a frame and wiping the glass occasionally. When rooted, repot in small pots well drained, and replace in the frame till well established. Keep them in the pots through the winter, and plant them out in a proper place in the spring.

Division.—Take up the plants in August, divide them into moderate-sized plants, pot them into suitable-sized pots, and keep them under protection through the winter, finally planting them out early in the spring. They are worthy of all this care.

ANTHEMIS—CHAMOMILE.

Nat. ord., Asteracæ. *Linn.* Syngenesia-superflua.

GENERIC CHARACTER.—*Involucre* hemispherical, imbricate; scales nearly equal; margins of scales scarious. *Receptacle*

convex, chaffy. Ray few-flowered. Pericarps crowned with a membranous border.

ANTHEMIS ALPINA (alpine). Stem downy, one-flowered; leaves sessile, pinnatifid, segments linear, subulate, pectinate, entire; petals ovate. 1 ft. White. July. Austria.

A. BARRELIERI (Barrelier's). 1 ft. White. August. China.

A. CORONOPIFOLIA (buckhorn-leaved). Stem erect, branched, smooth; leaves linear, sessile, pinnatifid, segments entire; receptacle conical. 1 ft. White. May. Spain.

A. GRANDIFLORA (large-flowered). 1 ft. White. July. South of Europe.

A. INCRASSATA (thick-peduncled). 1 ft. White. July. France.

A. KITABELLII (Kitabel's). 1 ft. White. June. Hungary.

A. MARSHALLIANA (Marshall's). Leaves hoary, bi-pinnate, pinnæ linear, entire or trifid-pectinate; stems ascending, one-flowered; calyx scales membranaceous at the point. 2 ft. Yellow. July. Caucasus.

A. PUBESCENS (soft-haired). Leaves bi-pinnate, pinnæ linear; stem erect, downy; calyx interior scales spiculate at the end, downy. 1 ft. White. July. S. of Europe.

A. RUDOLPHIANA (Rudolph's). Leaves bi-pinnate, pinnæ linear; stems ascending, one-flowered. 1 ft. Yellow. July. Caucasus.

A. TOMENTOSA (downy). Plant entirely white; stem erect; leaves pinnate, pinnæ three or five-lobed; involucre downy. 1 ft. White. July. Levant.

To this tribe belongs the well-known Chamomile of Britain. The species are pretty, free-flowering plants, though not very showy. Propagated by taking up the plants in March, dividing them into good pieces, and planting them directly in sandy loam, where they are to bloom.

T. APPLEBY.

(To be continued.)

LAYING DOWN GRASS FOR LAWNS.

Few things usually are more unsatisfactory than the imperfect manner in which Grass seeds germinate. For it is not uncommon to see large gaps without a blade of Grass, but redolent, perhaps, with weeds of the coarsest kinds; or, if the ground is clear of such-like seeds, a few solitary patches of Clover at wide spaces apart have the sole possession of the ground. This is very often the case where lawn-grass seeds are sown at any time but the proper, especially in districts not favourable to the growth of Grass, or, perhaps, on soils not the best adapted to it. Such, for instance, as is often met with in lawns, or in the neighbourhood of buildings, where excavations or levellings have been going on, leaving a very rough, unfertile material at the top, on which there is a wish to have a good sward as early as possible. Other cases sometimes come under the gardener's care, where large breadths of plantation or shrubbery have been destroyed, and the place intended to be laid down in turf. The latter case being one of often occurrence, it may be treated with first.

Assuming that it is determined to destroy a portion of a wood, and to sow the plot down with grass, and supposing this arrangement to have been decided on early in the autumn, then let no time be lost in grubbing up the trees, and removing them and other things; then drain the ground, if necessary; and if any portion of it have not been stirred at least a foot deep, let it be done, and the whole left exposed to the action of the winter. Getting all the above done early in the season enables the ground to sweeten and benefit by the weather. This being done before Christmas, and some hard weather following in January, the crop which it is most advisable to plant as a preparatory one may be put in as early in February as the nature of the ground and other circumstances will permit—taking care, however, to plant only the early varieties; for it is essential to have them cleared off the ground by the first of September, if possible, and then grass seeds may be sown with every likelihood of obtaining a good sward.

In recommending the beginning of September for the sowing of Grass seeds, I am guided solely by experience, and what is, perhaps, of more importance, copying Nature. We all know Grasses seed during the summer, and shed them when they are ripe—often, it is true, before September. I dare say August would be as favourable a time to sow them; but the dry weather often prevailing then, and the liability that seeds have to be picked up by birds when they lie some time on the ground before germinating, render it advisable to defer sowing until the end of August or beginning of September, when their growth will be assisted by the heavy dews common at that time. Besides,

in places where Potatoes have been grown, September is as early as a whole crop can well be got off, when they have to be kept through the winter. It also often happens that where timber or coppice has been on the ground for many years, that weeds, brambles, and rubbish of various kinds abound, all of which it is desirable to get rid of. Nothing affords a better opportunity for this than Potatoes planted wide, and they leave the ground in good condition for sowing Grass seeds. Besides, they often assist materially to pay for the work that has been done.

For the same reason, as urged above, September is the best month to sow small patches in the lawn where turf cannot well be had; and as Nature points out a proper time for everything to be sown, Grass is at this time more on the ascendant than those annual or other weeds which would overgrow the slender blades of the young Grass plant at another season. Sowing, also, in September, on ground moderately good, often ensures a good covering before winter, and the ground looks well all that dull season. The rich hue contrasts favourably with the older turf more or less injured by the frost, or dirtied extremely with worm-casts in mild winters.

Although it is needless here giving directions for laying down Grass for lawns, it being too often done on whatever mixture of material accident places at the top; nevertheless, a little care in having a very little good and fine material on which the seeds are first to strike root, after that they will struggle on, and live on a flat surface; but steep slopes lying to the south are liable to be scorched with the sun, if there is not a good depth of good mould. Let this, therefore, be well attended to, especially in dry districts; in moister ones, there is much less difficulty in having a good turf, and, what is of more consequence, it always looks better.—J. ROBSON.

TEXAS.

FIGS grow very well here, and at all points between this and the coast. In the low prairies near the coast there might, and ought to be, produced enough to supply the demand of the entire country. Many varieties of Figs are growing in Texas; but as yet I am not aware that any one has attempted to raise them as an article of export.

Very fine Oranges and Lemons are produced on Galveston Island and along the coast, but the trees are liable to be killed by the sudden changes in the spring of the year.

At present we have nearly the same garden vegetables that are grown in the vicinity of Philadelphia. When we have means of irrigation, the more hardy vegetables may be had fresh from the garden the whole year with slight care. Cabbage, Lettuce, Beet, Radishes, Carrots, Parsnips, Turnips, &c., may usually be had from the garden throughout the entire year; but this must be understood only when there is the means of irrigation.

Peaches, Nectarines, Apricots, and Plums, grow well, I think, in all parts of Texas. Some very fine Apples were produced in this neighbourhood last year. I think Pears may also be grown with care. Wild Grapes grow in great profusion, but chiefly of one or two kinds. The "Mustang Grape," as it is called, is a most prolific bearer, and makes a fine Claret wine. In many counties, quite thickly settled, I have no doubt but the product of this wild Vine, made into wine, would annually be much more valuable than the crop of cotton. These Grapes ripen early in July; and I have found the Vines hanging full late in December. There are, probably, twelve or fifteen varieties of this one kind, perhaps more; and some of them I think might be improved by cultivation so as to make a good table Grape.

There is a native Honeysuckle growing here, which I do not recollect to have seen anywhere else, and I should like if you could get it, for variety, if nothing else. We commence our spring gardening early in February.—C. G.

BELLE VUE ZOOLOGICAL AND BOTANICAL GARDENS, NEAR MANCHESTER.

(Continued from page 304.)

In the Pine-stove here I noticed a large number of pots filled with the new genus *Tydea*. These are intended for winter display of bloom in the large stove, for which purpose they are admirably adapted; also a large assortment of *Gloxinias*, the young shoots of which were just appearing above the soil. These, also, are for winter blooming when flowers are comparatively

scarce. By keeping the same plants for this purpose from year to year, they become habituated to springing up at this time, and thus furnish decorations for that season. I think this practice may be imitated with advantage by any gardener desirous (and who is not?) of having a good supply of such flowers at that season of the year. I saw a noble specimen of the Elk's-horn Fern, *Platycerium grande*, hung up on a block in a corner of this Pine-stove. The block was completely covered with the infertile fronds, and the fertile ones were fully three feet high.

As I intimated in my last communication on these gardens, I was conducted from the grotto fernery to the large stove and Fern-house, which is 124 feet long by 24 feet wide. It is divided near the centre with rustic arches covered with Ferns and Lycopods. In the first division the Ferns are grown in pots placed on a platform next to a brick wall: hence each pot is sheltered from the scorching rays of a summer's sun—a point of culture deserving attention. These Ferns are admirably grown, especially the following species:—

Cheilanthes lindigera. Two feet high, and as much through.

C. hirta and *C. frigida*, equally fine.

Notholaena chrysophylla. Two fine plants, perhaps the finest in England.

N. nivea. Several good plants.

Leucostegia charophylla. Very fine.

Davallia ternifolia. Two feet.

D. dissecta. Three feet.

D. bullata. Three feet.

D. elegans. Three feet.

Platyloma calomelanos. Two feet.

P. ternifolia. Two feet.

Gymnogramma chrysophylla. Two feet.

G. Peruviana argyrophylla. Three feet by three feet, very fine.

G. lanata. Two feet.

G. Mertensii. Three feet.

Adiantum macrophylla. Two feet and a half, very healthy.

A. varium. Two feet.

A. trapeziforme. Three feet by three feet, really splendid.

Asplenium Balangerii. Two feet by three feet, a fine Fern.

A. feniculaceum. Two feet.

Cibotium Barometz. Three feet, splendid.

Neottopteris nidus. Four feet, a noble plant.

A new broad-leaved fine Fern from the Amazon River country.

Besides these I noted many others, equally fine, of more common species.

In the centre of this part of the stove there are at least a score of large plants, in full flower, of the old *Begonia nitida*. I was assured they flower all the year. A more showy plant for general purposes is not known. For cut flowers it is invaluable.

Passing through the rustic arches in the centre of that part of the stove, there is a pit filled with tan: and, growing in pots plunged in that plant-encouraging material, I saw the following handsome stove plants:—

Allamanda Schottii. Trained balloon-shape, and covered with the largest flowers I ever saw anywhere.

A. Cathartica. Quite as large, and as well bloomed.

A. grandiflora. A fine well-bloomed plant.

Dipladenia crassinoda. Three feet through, covered with high-coloured flowers.

D. acuminata. Decidedly distinct, and with larger and equally high-coloured blossoms.

D. splendens. Very fine.

Isora salicifolia. A moderate-sized plant, with seven large heads of flowers, very finely coloured. Mr. Crouch keeps this species in good health by grafting it upon *I. coccinea*—a secret worth knowing.

I. coccinea. This fine old plant is grown here in this tan-bed in great perfection. Some of the heads of bloom measured nine inches across.

I. alba. A fine white-flowered species.

I. floribunda. A distinct, very free-flowering species, which every grower of stove plants ought to procure.

Cyrtoceras reflexus. Three feet. A dense well-flowered plant.

Vincas, three species.

On the curb-stone of this pit I noted several fine plants of *Dionaea muscipula*, and many species of the curiously-interesting genus *Sarcocolla*. The sides of the house where this tan-pit is are formed of rockwork now almost hidden with various kinds of Ferns. Amongst them the beautiful-foliaged *Cissus discolor* creeps about, displaying its rich many-hued foliage to great

advantage. On the roof the strange-formed flowers of *Aristolochia gigas* were in great perfection.

Gloxinias and Achimenes were in great force—large plants covered with bloom. The Achimenes are made use of for basket plants, and very fine they were; some measuring fully five feet across, and every leaf perfect: nothing could be more beautiful.

Variegated plants, such as *Croton variegatum*, five feet by three feet; *C. salicifolium*, well branched, the same size; Begonias in great variety; Caladiums, &c. I noted a fine well-bloomed plant of *Meyenia erecta*, which I understand is nearly always in flower; and the secret of that is, they water it with liquid manure, never prune it, and keep it underpotted.

Echmea fulgens, one of the best of stove plants, is here in a mass, fully three feet across. Also *Stephanotis thyracanthus*, eight feet; *Cycas revoluta*, five feet, &c.

Lycopodiums there are no end of, growing in wide shallow pans. They are very beautiful.

Leaving this most interesting house, I came upon a large square set round with covered seats and ornamented with statuary. Near it Mr. Jennison had formed last year a large lake, five hundred yards round, on which parties who love aquatic rides are provided with boats; and even a small steamboat plies on its waters.

Crossing the square, we came to a second Fern grotto, ornamented with pillars formed of scoriae and covered with Ferns, &c. Here small jets of water play, and give animation to the scene. This rockwork is admirably done, and is the handiwork of Mr. Crouch. In this house there is a fine *Musa Cavendishii*. This concluded the garden part of this establishment, and the whole reflects great credit to the manager.

The zoological department is rather out of my way. I may just state, however, that the collection of animals and rare birds is considerable, and continually increasing. There are dens for carnivorous species, a lofty house for monkeys, a large aviary for the parrot tribe, a large paddock for deer, camels, alpaca sheep, and ostriches. There is also a maze larger than that at Hampton Court. There are archery grounds, bear-pits, in which I noticed two very large white Polar bears. Near these pits there is a leaf-covered walk winding its sinuous way for several hundred yards, formed chiefly with the Weeping Ash, supported by pillars, above the reach of heads, hats, or bonnets. I may also just glance at the noble Music Hall, recently decorated by Danson and Sons, of London, which, with the refreshment and retiring rooms, covers an area of four thousand square yards, in which, and the galleries, 15,000 persons can be sheltered. One large room Mr. Jennison has liberally devoted to the use of such persons as may choose, for economy or necessity, to bring their own provisions. This is called the hot-water room. For the small charge of twopence each party of visitors are supplied with tea-tray, enps and saners, teapot, and other requisites, with hot water *ad libitum*.

I might fill a small pamphlet if I were to mention every point of interest in these remarkable Gardens; but my space is full, so I can only say, if any of my readers visit Manchester, let them by all means visit Belle Vue Gardens. I am sure they will be highly gratified, as was the writer on the occasion when these notes were jotted down.—T. APPLEBY.

NOTES UPON FERNS.

TRICHOMANES.—Among Ferns the various species of Trichomanes are my especial favourites. Their minute size, the exquisite beauty of their pellucid (almost transparent) fronds, the variety of forms they assume, their extreme delicacy, and, in a less degree, I must confess, their rarity, have caused them to be elected "the pets," and entitled them to a superlative degree of attention. Many sorts have, from time to time, been imported; but as they have, in most cases, been lost again, it is extremely difficult to obtain information respecting them. Since Ferns have become so popular, a large number have been introduced; and greater attention being paid to them, I trust their ranks will be constantly recruited for many years to come. There are nearly thirty species which may now be looked upon as fairly established in our English gardens. I have turned to Loudon's works, Paxton's dictionary, and other works of reference, seeking information concerning them, but without success. The *Cottage Gardeners' Dictionary* is the only book in which more than one or two species are named. Twenty sorts are given there; but not half of these are now in cultivation, I fear. It may, there-

fore, be interesting to give a list of those which are to be met with; and if any of your correspondents can add to the number, we shall be mutually benefited.

The largest collection of *Trichomanes* to be found in any one garden is in the celebrated nursery of Messrs. Backhouse and Son, of York; and every lover of Ferns would find himself fully repaid for the trouble and expense of a visit, even if he had to go from the remotest corner of our island. I never shall forget the treat I had a short time ago, in a sight of their fernery, which I look upon as one of the horticultural triumphs of the age.

But to return to our *Trichomanes*. These delicate little Ferns are to be found in all the snug, moist, shady corners of the warm regions of the earth. In the dense forests of the tropics they literally abound. Two or three species may often be found upon the stem of a single tree Fern, which is one of their favourite habitats. Under cultivation it is necessary to keep them sheltered by a bell-glass or hand-light, and constantly shaded from bright light. The least whiff of dry air or ray of sunshine would be fatal to them. They cannot easily be kept too moist: a pan of water should be placed under the glass, and filled up as often as it evaporates, and they should be sprinkled with soft water by means of a very fine-rosed waterpot two or three times a-day. Or it would be better still, if, as at York, water could be allowed to drip upon a stone close by, and so keep them always in the spray, as it were. They are often imported upon pieces of the stem of tree Ferns, and, in that case, nothing more is necessary than to place it upright and cover with a bell-glass. But if they have been growing on the ground, place them between some pieces of coarse sandstone (not calcareous), with very little fibrous and sandy peat; but, above all things, be careful that there is not too much soil, and that there is not the least chance of its becoming sour, or water stagnant about them. The surface of a coarse-grained piece of sandstone kept constantly moist is amply sufficient to support them. The tropical species will succeed in an ordinary stove temperature; those from New Zealand do better in a greenhouse.

Those of our readers who may be desirous of obtaining *Trichomanes* from friends resident abroad, will do well to advise them to be sent in wide-mouthed bottles (glass pickle jars, for example), slightly moistened, tied down so as to be air-tight, and hung up in some corner of the cabin, where they may get a little subdued light.

These plants furnish to the microscopist some of the most exquisite objects of which it is possible to form an idea. The sporangia, or spore-cases, are arranged around a thread-like column, which often extends some distance beyond the orifice of the cup like a long hair; whence, indeed, the name *Trichomanes* is derived. The structure of the fronds exhibits a network as delicate as the embroidery of a fairy's robe. Even the hairs which clothe the footstalks, or fringe the fronds, are worthy of minute inspection. They are made up of cells placed end to end, and are usually branching, throwing off two or three arms almost at a right angle to the lower part.

I will now proceed to give a list of those I have myself seen, and with whose history I am acquainted.

TRICHOMANES ANDREWSII is the name given to the long-fronded variety of the Irish Bristle Fern (*T. radicans*). This plant is scarce in Ireland, but the same form is met with in northern India.

T. BANCROFTII. Fronds ovate, bi-pinnatifid, two to four inches long. Stipes with a broad wing extending to the base. It grows in little tufts. Native of the West Indian Islands, but becoming plentiful now in the London nurseries.

T. CRISPUM. Fronds four to six inches long, pinnate, with obtuse pinnae; dark green, growing in tufts. Native of the West Indies and tropical America.

T. DENISSUM. Fronds bi-pinnate, eight inches to a foot in length; very delicate green. It comes from New Zealand, but it grows also in the islands of the Pacific Ocean.

T. DILATATUM. Pale green bi-pinnate fronds, about a foot in length; segments of the pinnae broad. Native of New Zealand and Java.

T. FLABELLATUM. Native of the South Sea Islands.

T. FLORIBUNDUM. Fronds six inches to a foot and a half long, pinnate, with a lengthened terminal pinna. Tropical America and the West Indies.

T. HETEROPHYLLUM. Native of tropical America. A very variable but always pretty plant.

T. KRAUSSII. Fronds one to two inches long, oblong, obtuse at the base, deeply pinnatifid; segments linear, sinuate. In-

volucres with a red margin. One of the smallest and prettiest species. A native of the West Indies.

T. LUSHNATIANUM. From Brazil. Probably only a variety of *radicans*, which it resembles.

T. MARGINATUM. Fronds entire, one inch to two inches and a half long, more or less irregularly lobed, remarkable for having small peltate scales upon the upper and lower surfaces of the frond near the margin. From Trinidad.

T. MUSCOIDES. Fronds entire, an inch long, strap-shaped, or more or less oval in form, with three or four concentric undulations, which cause a great play of light upon the shining fronds. Native of tropical America.

T. POLYANTHUS. Fronds only an inch or two long, bi-pinnate, lax. West Indies.

T. RENIFORME. Fronds kidney-shaped, about an inch and a half across, the fertile one beautifully fringed all round with the little cups containing the sporangia, and from each of which a long hair protrudes, giving it a most interesting and singular appearance. Rhizome black, thread-like, creeping. From New Zealand. Grows freely in a cool greenhouse.

T. REPTANS (*muscoides* of some gardens). Fronds entire, about one inch long, somewhat wedge-shaped, divided into three or four deep lobes. As it creeps over stones, or climbs a stem, its thickly-clustering yellowish-green fronds look more like some *Marchantia* than a Fern. West Indies and tropical America.

T. RIGIDUM. Fronds much divided, standing nearly upright on wiry stipes. From the West Indies. This seems a very difficult species to import, as it usually dies on the journey.

T. RADICANS. The well-known Killarney Fern. This, varying slightly in form, has been found in almost all parts of the world. North and South America, in India, in the South Sea Islands, and it is very abundant in Madeira and the Azores. It has compound olive-green fronds, larger than any other species in cultivation, often a foot and a half in length.

T. SCANDENS. Fronds ovate-lanceolate, tri-pinnate, a foot or more long, slightly hairy. Very like the last species, but fronds more distantly placed upon a thread-like climbing rhizome. West Indies.

T. SINUOSUM. Fronds lanceolate, pinnatifid, from four to nine inches long. Native of Peru and the West Indies.

T. SPICATUM. Sterile fronds four to six inches long, lanceolate, pinnatifid. The fertile one consisting only of a double row of involucre arranged upon the mid-vein. Growing in little tufts. Tropical America. This has by some botanists been made the type of another genus called *Flea*.

T. TRICHOIDEM. Fronds six inches long, divided into very fine capillary segments. Tropical America. I have only seen one plant of this Fern, and that was with Mr. Backhouse.

T. VENOSUM. Fronds about two inches in length, pinnate, lax, of a delicate light green, shining. It is a native of Australia and New Zealand.

There are a few other species to be found in gardens, as, for instance, *rarum*, *membranaceum*, and *flabellatum*; but as I have no personal knowledge of them, I have left them out of the list given above.—KARL.

QUERIES AND ANSWERS.

PITS FOR PLANTS—VERBENA CUTTINGS.

"I have three pits: No. 1 adjoining a stove, and supplied with both top and bottom heat; Nos. 2 and 3 only with top heat, from hot water. The pits are about six feet deep. With what should I fill them, so as most effectually to keep down the damp? I have tried faggots and a thick layer of ashes, but without success. I use the pits 2 and 3 for keeping my plants and cuttings in over the winter; having, also, one small lean-to greenhouse without any heat, and one with an old-fashioned flue. Into which of these different places would the different plants do best? They principally consist of Geraniums, and cuttings already struck cold; Fuchsias, Verbenas, already struck cold; and the other common varieties of bedding-out plants. Should you advise my potting out the Verbena cuttings (now struck in shallow pans), or leaving them as they are through the winter?"—H.

[The bottom heat will be of no use for such struck plants in winter. When you commence propagating in spring it will be invaluable, or for tender plants in winter. Your best security for damp will be to set the plants on a moveable stage of wood, so that there is a circulation of air below as well as above them.]

We would keep the tenderest and best of your Geraniums, Verbenas, and young struck Fuchsias in such a pit. We would put scarlet Geraniums, large old Fuchsias, Calceolarias, &c., in the flue-heated greenhouse. The potting now is purely a question of room; but in small pots they will make nice plants, and require room and labour accordingly. On account of want of room we always keep them in the cutting-pots all the winter, take all the cuttings from them in spring, and then turn them out on a border, where they can receive protection before they are transferred to the beds. We scarcely ever pot at all the plants you mention.]

PRUNING OLD PEAR TREES ON WALLS AND ESPALIERS.

"How would you manage Pear trees, wall and espaliers, that have filled their space and are full of long spurs, although young trees. Being a young hand and just come into this situation, my master's way of treating them does not agree with my practice, as they will soon get a foot from the wall. They made a good deal of breast-wood this year, and I stopped it in two or three times to about two or three eyes, intending to cut them close in winter; as also all the wood that had no fruit-blossom or buds. There is no room for more wood, being already too thick. Being a young hand I do not like to be too confident, although my practice and all the best I have seen, and also what I can learn from your works, confirm me I am right. I may as well state what is my master's plan. He stops four or five inches from the base of the shoot, which, in some cases, is at the end of a long spur, and expects the fruit-buds to form about half-way up.

"I have also a large Bilbergia that will not bloom. Can you inform me the way to make it? Cambridge, the locality, is fifty-seven miles north-east of London."—G. W. X.

[Both plans of treating the Pears are best according to circumstances. Yours where there is plenty of fruit-spurs and fruit-buds, and securing neatness and closeness to the walls: such close stopping, however, is apt to make even fruit-buds start, especially in a dripping summer or autumn. The master's plan is the best for securing the fruit-buds on the spurs, and causing fruit-buds to form on the lower part of the young shoots. When so stopped, the shoots will push again; but that is of no consequence, as these may also be stopped and removed, provided not so early as to start the lower buds into wood-growth. By such modes, shoots will generally be fertile in the second season after, and often at the first.

Towards autumn limit the supply of water to the Bilbergia, just keeping it from flagging. If stunted for pot room, it will soon show its flower-stalks, then water.]

VENTILATORS.

ABOUT two miles from Baltimore is Clifton Park, the residence of John Hopkins, Esq.—the outline, certainly, of one of the finest places in the United States. We say the *outline*, as we should suppose it would take double or treble the number of hands now employed to bring out all the nice points so grand a place is capable of affording.

The sheet of water is a magnificent affair, being, we believe, entirely artificial, and designed and kept up in a beautiful and natural manner.

Some of our best gardeners have, at various times, been engaged here—Leuchars, Frazer, Patterson, Saunders and others. The present gardener, Mr. Fowler, has been here for some time; and, considering the force at his command, had everything under his control, in wonderful good order and high keeping.

One of the prettiest objects here was an *Araucaria imbricata*; the most perfect specimen we had before seen. It was about six feet high, very symmetrical, and well furnished with branches to the ground. The leaves were rather narrower than usual, and struck us at first as being a very luxuriant specimen of *A. Cunninghamii*. Every lover of rare and beautiful trees should beg the privilege of seeing this fine specimen.

In the long range of vineries we noticed a very simple contrivance for giving air. The houses are on the lean-to principle; and ventilators are fixed in the back wall, immediately beneath the apex and under the sliding sashes. These ventilators, or registers, slide vertically; but what we thought a novelty was,

that all of them were attached together by a thin iron plate, with a rope and pulley at each end, by which the whole might be opened or shut together. See cut annexed.



Some modification of this simple idea might be applied on the top of vineries with fixed roofs, instead of many of the clumsy contrivances now in use.—(*American Gardener's Monthly*.)

THE SCIENCE OF GARDENING.

(Continued from page 305.)

MANURES sometimes assist plants by destroying predatory vermin and weeds. This is not a property of animal and vegetable manures; they foster both those enemies of our crops. Salt and lime are very efficient destroyers of slugs, snails, grubs, &c. It is astonishing how ignorantly neglectful are the cultivators of the soil, when their crops are devastated by the slug, not to dress them with caustic lime, so as to render the surface of the soil quite white during the promise of a few days' dry weather: it is instant destruction to every slug it falls upon; and those that it misses are destroyed by their coming in contact with it when moving in search of food.

It is a common practice to burn Couch-grass, Docks, Gorse, and other vegetables, which are very retentive of life, or slow in decay: a more uneconomical, unscientific method of reducing them to a state beneficial to the land of which they were the refuse cannot be devised. In breaking up heaths, such exuviae are very abundant; but, in all cases, if the weeds, leaves, &c., were conveyed to a hole or pit, and, with every single horse-load, and with barrow-loads in proportion, a bushel of salt and half a bushel of lime were incorporated, it would, in a few months, form a mass of decayed compost of the most fertilising quality; the lime retaining many of the gases evolved during the putrefaction of the vegetable matter, and the salt combining with the lime to destroy noxious animals, which might form a nidus in the mass. By this plan nearly all the carbonaceous matters of the refuse vegetables are retained; by burning, nearly all of them are dissipated. The forming of a compost, such as that recommended, is justified and approved by the experience of many.

Stable-manure, and all decomposing animal and vegetable substances, have a tendency to promote the decay of stubborn organic remains in the soil, on the principle that putrescent substances hasten the process of putrefaction in other organic bodies with which they come in contact. Salt, in a small proportion, has been demonstrated by Sir I. Pringle to be gifted with a similar septic property; and that lime rapidly breaks down the texture of organised matters is well known.

There is no doubt that rich soils, or those abounding in animal and vegetable remains, are less liable to change in temperature with that of the incumbent atmosphere than those of a poorer constitution. This partly arises from causes already explained when treating of the influence of the colour of soils upon vegetation. Some manures, as salt, protect plants from suffering by sudden reductions of temperature by entering into their system, stimulating and rendering them more vigorous, impregnating their sap, and consequently rendering it less liable to be congealed.

Other saline manures are beneficial to plants from similar causes; but, as is justly observed by Professor Johnston, "we have also seen that all our cultivated crops require the ingredients of several saline compounds to form a healthy plant. Hence we naturally draw the inference, that artificial mixtures of two or more saline substances are likely to be still more useful, and more generally so, than any one substance applied alone.

"This has been confirmed by numerous experiments. Thus,—

"1. *Sulphate with nitrate of soda*.—If instead of dressing Potatoes with dry sulphate of soda alone, a mixture of this salt with an equal proportion of the nitrate of soda be applied at the rate of 2 cwt. per imperial acre, the produce is in the same circumstances much greater. Thus Mr. Fleming, in 1841, obtained in the same Potato field, all equally manured with farmyard dung, the following different results—

	Produce per imp. acre.
With dung alone	16½ tons.
Dressed with nitrate of soda	20 "
With sulphate and nitrate mixed	26¾ "

"Again, in 1842, he obtained on another field of Potatoes top dressed on the 1st of June—

	Produce per imp. acre.
1. Dung alone gave	12¾ tons.
2. Dressed with 2 cwt. sulphate	12¾ "
3. Dressed with 1½ cwt. nitrate	16 "
4. Dressed with ¾ cwt. nitrate and 1¼ cwt. of dry sulphate of soda	18 "

"Still such results are not constant. It is only where the soil is deficient in the constituents of both salts, that the application of the mixture of the two is likely to be more useful than either of them put on alone. It may even happen, as in the case of the sulphate in this experiment, that one substance when applied alone may produce no increase of crop, and yet may increase the good effect of another which is applied along with it.

"2°. *Sulphate of soda with sulphate of ammonia.*—The same mutually-increasing effect of two substances was seen by other experiments in the same field. Thus—

	Per imp. acre.
Dung alone gave	12¾ tons.
2 cwt. sulphate of soda in addition	12¾ "
1½ cwt. sulphate of ammonia	12½ "

"The produce being sensibly equal in the three cases, and the top dressings apparently thrown away. But a mixture of

1½ cwt. sulphate of soda, with } gave 18¾ tons.
¾ cwt. sulphate of ammonia }

"3°. *Sulphate of magnesia with nitrate of soda.*—In the same field also—

1½ cwt. of nitrate of soda gave	16 tons.
1½ cwt. of sulphate of magnesia	13¼ "

"While a mixture of

1 cwt. of each of the two gave	22½ tons.
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"4°. *Sulphate of lime (gypsum) with common salt.*—Gypsum and common salt are known to have been often used with advantage alone. Mixed and applied at the rate of 2 cwt. of gypsum to 1 cwt. of common salt, Mr. Alexander, of Ballochmyle, found it to invigorate an apparently worthless Bean crop to such degree that it became the admiration of the district. — (*Lectures on Agricultural Chemistry, by Professor Johnston.*)

Every cultivator of the soil, by certain empirical signs, may be able to determine that certain appliances are required to render his land productive. For example, he knows when chalk may be applied to advantage; but no lengthened practice has yet enabled any one to judge of the quality of a chalk by its exterior appearance. Chemistry alone can do this. The farmers of a district in Yorkshire having experienced the benefit of lime, procured some from a neighbouring kiln, and were astonished to behold the injury it caused to their crops; and it remained an anomaly of their experience, until chemistry demonstrated that the lime near home contained a very large proportion of magnesia, which, absorbing carbonic acid very slowly, remained in a caustic state, to the injury of the roots of the plants, and the diminution of benefit from the carbonic acid evolved by the decomposing constituents of the soil.

The experiments of Saussure demonstrate the benefit accruing to cultivated plants from animal and vegetable manures decomposing in the soil; but they do more, for they afford additional evidence to that already given how erroneously those persons argue who recommend the seed to be soaked in powerfully stimulating manures, for no other reason than because they are grateful to the adult plant. Carbonic acid gas, though an efficient promoter of a plant's growth when mature, is a check to its progress whilst the root is forming. Saussure placed Peas so that their just-developed radicles were immersed, some in distilled water, and others in water impregnated with carbonic acid. The radicles when the experiments commenced were two lines and a half in length, and in ten days those in distilled water were five inches longer than those in the acidulated water, and the stalks and leaves were equally superior. But when a month had passed, the relative superiority was reversed, and in six weeks the plants fed with carbonic acid were in every respect most vigorous. Ruckert obtained nearly the same result when Beans were grown in earth, some being watered with distilled water, and the others with water impregnated with carbonic acid.

Every cultivator in districts where marl is to be obtained is aware that it is highly beneficial when applied to the land; few of them, however, know that this various-coloured compound of earths contains always chalk, often to the amount of 50 per cent. They learn from experience that the marl of one district is most beneficial to their heavy soils; that of a second district is productive of most benefit upon light land: yet they are ignorant, in the first instance, that the first marl contains silica, or sand; that the second has alumina, or clay, as a component; and if a new pit of marl is opened, they have to wait the result of some years' practice before they can ascertain its quality. The chemist can inform them in an hour.—J.

(To be continued.)

PUTTERIDGE GARDENS.

(Extracted from the "Luton Times.")

It is once more our pleasing duty to acknowledge, on behalf of ourselves and the public, the liberality of Colonel Sowerby, the worthy proprietor of Putteridge Bury, in allowing to the inhabitants of Luton and the neighbourhood free admission to his enchanting grounds on three successive Wednesdays. During our late visit, we were forcibly reminded of a remark of Ebenezer Elliott. He was one day walking with a friend by a house, in front of which was a garden separated from the main road by a bank, the *outside* of which had been planted by the owner with a variety of beautiful and fragrant flowers for the delectation of passers-by. After gazing awhile at the unwonted spectacle, the "rhymist" exclaimed, "Now that is a gentleman!" We feel sure that this title, so difficult to define, yet so dear to an Englishman—the highest, indeed, which he can bestow or receive, will be unanimously accorded to the gallant Colonel. Not that he has exactly imitated the gentleman alluded to above; but, "nation of shopkeepers" as we are, there is not one among us to whom a highly cultivated farm is not an object of pleasure; and where can we be favoured with finer specimens of farming than meet our view between Stopsley and Lilley? And where are there lovelier cottage gardens than adorn the latter village? And who knows not how much such matters are dependent on the fostering care of the landlord?

But not only does the gallant gentleman give the public pleasant views on what may be called the outside of his domain, he admits them to an inner paradise of beauty that does far more than realise the highest expectations, affording to many what we know to be one of the greatest gratifications in the year. We trust that the pleasure experienced is reciprocal; and that the heart of Colonel Sowerby is gladdened when he sees around him so many happy beings flitting about in an ecstasy of delight, the result of his kind arrangement, and finds himself helping on the solution of the problem, "How shall the upper and lower classes be animated with mutual respect and esteem?" May he long live to exhibit his kindness, and may he have many imitators; for such individuals exercise a far more beneficial influence on society than even law and police.

For the sake of those who cannot embrace the privilege of a visit, we wish that by some happy effort of photographic art, with the addition of suitable colouring, the public could be presented with a picture of these gardens on an admission-day, that they might obtain the extended celebrity they so well deserve. Placed on high ground, they command, on the north, views of Lilley Wood, and peeps of the beautiful village beneath, with the gilded vane of the church; and on the north-west, the miniature plateau of Lilley Hoo, so famed in the history of Luton pic-nics. From the terrace on the east side of the mansion, there are fine peeps through the trees of the diversified ground, terminating in the heights of Olley; and from the same terraces, and other parts of the ground, rich views to the south-west, terminating in the romantic, ivy-covered, wood-embosomed church of King's Walden. On the south, the farm-house and the village of Mangrove attract the eye, with cattle and sheep grazing on the intermediate slopes. The terraces, extending along the east side and the north and south ends of the mansion, is bounded by a ribbon-border some five hundred feet in length, planted with scarlet Geraniums, orange *Caleolarias*, and blue *Lobelia*, with variegated *Alyssum* next to the grass terrace. Below the terraces are Roses and Thorns. In front of the drawing-room and dining-room windows are thirty beds, separated by narrow stone panels; each of these being filled chiefly with fancy Geraniums, raised into the pyramidal form by other contrasting plants, such

as scarlet Geraniums, and red and white Fuchsias in the centre. For instance: the middle bed on each side is a large mass of the scarlet Geranium *Punch*, blended down to the stone edging with a white nosegay Geranium. Raising the centre in this manner does away with anything like tameuess, and allows of far greater variety than could be obtained by having the beds flat. We should imagine, that although these beds do not cover a large area, yet from the mode in which they are laid out, they contain sufficient flowers for a rather large garden.

On the south side of the mansion, surrounded with a terrace of grass and gravel, is a sunk Italian garden, about three feet and a half below the general level. The beds, eighty in number, are circular, and square in form, divided from each other by grass paths, radiating from a fountain and basin in the centre. These beds are filled with contrasting colours of scarlet, white, yellow, purple, orange, and blue, of various shades, and so similar in height, that from every point the eye takes in the whole. Opposite these, and along the sides of a walk, are a series of raised beds, about fifteen inches above the general level, with a large hoop over each, so as to resemble baskets, the hoops being covered with beautiful creeping plants. Each bed is filled with three rings of contrasted colour; and the raised edging is hidden by masses of pretty small Nasturtiums of various colours; and *Convolvulus minor* allowed to form huge natural-like wreaths. In the centre of the lawn is an avenue of beds, formed of circles of five feet and ten feet alternately, there being twenty-four beds on each side of the avenue, the two opposite beds being planted alike. To produce variety these are all planted in the pyramidal style, and with three or four distinct colours in each bed. To give an idea of the exquisite beauty of these beds we would mention that two of them have a white *Brugmansia* in the centre, some five feet in height, then a fringe through the large leaves of scarlet *Salvia*, then a ring of bluish *Ageratum*, then two rows of yellow *Calceolaria*, with a double row of *Flower of the Day* Geranium next the grass. This avenue is terminated by a mound, with Roses on pillars and chains, enclosing seven beds of low-growing plants, each edged with a contrasting colour. Nearly opposite to this, and close to some stately Elms, is another group of beds, each of one colour, but the level outline broken by large plants of scarlet Geraniums, Fuchsias, and *Cassia corymbosa* placed in the centre of each bed.

But of all the beauties in the garden the marvellous ribbon-borders probably excite the most surprise and admiration; and certainly not without reason. The largest, backed by a wall of Roses, Myrtles, Magnolias, &c., is about 340 feet in length, with seven unbroken lines of colour from end to end. Without for a moment pretending to describe this border, we will merely name the manner in which it is planted. Between the gravel path and the border is a neat grass edging. The rows of flowers are then ranged in the following order:—1st, a line of *Golden Chain* Geranium; 2nd, a line of *Purple King* Verbena; 3rd, one of the *Brilliant Scarlet* Geranium; 4th, a line of white Verbena *Mrs. Holford*; 5th, a row of the *Mrs. Colville* Geranium, Purple Nosegay; 6th, a row of yellow *Calceolaria amplexicaulis*; 7th, a magnificent line of the *Trentham Rose* Geranium. These present a uniform sloping bank from back to front. The opposite border, which presents two sloping banks, is partially planted in the same way; the centre is raised, and the sides drop down to the grass. What greatly adds to the beauty of the latter border, along the centre is a line of iron pillars, connected with festooned chains; and up these pillars, and along these chains, climbers—especially the *Tropæolum pentaphyllum*—are allowed to dangle with a careless freedom.

Beyond the Elm trees already noticed are groups of Dahlias, not yet come to perfection (and seeming to invite us to an inspection when they shall be "fit to receive visitors"), and recesses in shrubberies, with masses of Hollyhocks, fronted with tall and dwarf Dahlias, edged with China Asters, &c.; and rock gardens, and alpine gardens add their sombre attractions as a contrast to those of their more showy companions.

Would that we could supplement this meagre enumeration of the floral beauties of Putteridge, with such a description of them as would create in the minds of those who have not witnessed them a feeling of admiration equal to our own; but on this head we can only say that we question whether Mr. Fish himself, notwithstanding his great descriptive powers (of which he gave evident proof in a course of lectures kindly delivered in this town, and still gives in his able contributions to professional and other publications) could depict in words the fair scene which his conception of the beautiful and his practical skill have called into

existence. In saying that nothing in our neighbourhood (at least, nothing that the public are permitted to have an opportunity to form an opinion upon) can vie with Putteridge Gardens, we but faintly express our idea of the ability manifested in every part of these delightful grounds, which confer the greatest honour on both the proprietor and the artist. Nor would we forget the humbler labourers in the magic sphere—those who carry out the plans of Mr. Fish—*certainly* they must be proud of their chief; and signs are not wanting that their portion of the work is performed *con amore*, under the conviction that their services are thoroughly appreciated.

We may notice here, that during the three days of admission, nearly 4000 persons were privileged to pay their devotions at the shrine of Flora; and to show the superiority of these to grosser pleasures, it may be affirmed that not one returned disappointed.

Mr. Fish once told us that it gives him pleasure to think that Putteridge was about the first large garden opened to the public without any control being exercised over the visitors. This took place several years before the Exhibition of 1851, which showed so clearly how our often-maligned countrymen might be trusted. When the gardens were first opened the period extended over some two months, and a man was sent out with each party. Two reasons soon led to the giving up of such a practice—1st, the drain on the time, and the unsettling the men from their ordinary work; 2nd, the keeping back many of the humbler classes who had eyes and perceptions for the orderly and the beautiful, and who might see in the person of an attendant a reason for clubbing for a gratuity they could ill spare. In giving notice, therefore, of the grounds being open, "to the public" was substituted for "visitors," and there being no attendants, every person respectably dressed was free to enter and free to go; and, as a consequence, great numbers of our hard-working friends, in their holiday attire, have availed themselves of the privilege; and so well have they conducted themselves, that, with the exception of the remains of a paper bag or two, which might have been put out of sight, or left outside (no pic-nics being contemplated), the grounds on the following morning have shown no traces that they had been traversed by so many hundreds of persons. It is only what has been demonstrated over and over again—that when people have the sense of honour fairly appealed to, it is seldom the appeal is made in vain.

RENEWING HEAT IN OLD HOTBEDS.

BY J. S. HOUGHTON, M.D.

DR. UHLER renewed the heat of old hotbeds by pouring into them a hot solution of glue, distillery swill, &c., nitrogenous and rapidly decomposing substances, which act as a sort of yeast, or fermenting agents, to excite decomposition in the substance of the beds.

I accomplished the same thing, using a hot solution of potash in a partially caustic state. The circumstances were these:—

I had several hundred feet of hotbeds devoted to the raising of early vegetables and plants for market. In midwinter my gardener informed me that the beds were declining in heat, and that, if not speedily attended to, we should lose the entire labour of the season. We were ten miles from the city, on the river, which was frozen over, and travelling was bad. We had no manure on hand, and could not obtain any without great labour and expense; and even if we had, it would not produce sufficient heat in time to save the beds. I immediately turned to chemistry for aid. We had collected several hundred horse-loads of oak and pine leaves (chiefly what is called pine straw) which lay in a heap near the hotbeds, covered and mixed with snow and ice. To excite a heat sufficient for hotbeds, in this unpromising mass, in midwinter, might seem a hopeless task. But I resolved to try it, by the aid of potash in hot solution. I did so, and succeeded perfectly. The snow and ice in the heap served the purpose of water; and the heap speedily showed a good heat, and formed an admirable lining for the hotbeds. I poured the same solution into the hotbeds themselves, and in a few days we had heat enough and to spare.

I will add a few practical hints upon the use of potash, soda-ash, and other alkalis to excite heat in old hotbeds, and the means of increasing the power of these agents, when great heat is required, or when the temperature of the air is very low, and the beds very old and very cold.

Potash and lye from wood-ashes are the same, as everybody

knows. But these substances, although powerful decomposing agents, and often sufficiently so to answer the purpose, are not in the truly caustic state, but may be rendered so by the addition of freshly-slacked stone lime, and they will show a greatly increased power when applied to the hotbeds. In mixing, add one part and a half of lime to one part of potash, or equal parts of lime and lye. The chemical laws and processes by which this result is obtained I will not take space to describe.

Carbonate of soda, washing soda, or soda ash, may be used in place of potash, with precisely the same effect and equal success, by mixing freshly-slacked lime with the soda in the same way as with potash.

If you wish a very quick and powerful heat, add to the hot solution of potash or soda fluid glue or distillery swill, blood, animal offal, or Peruvian guano, say one quart of solution of glue, or animal offal, or one pound of guano to the gallon of potash, or soda mixture, or equal parts of potash or soda mixture and swill. After applying the mixture, add plenty of boiling water. The hotter all the solutions are the better.

The potash or soda alone, I think, will prove more powerful than the solution of glue, and will continue its effects for a longer time; but with the addition of glue, animal matter, swill, or guano, will meet the utmost requirements of the gardener in the coldest seasons.

In using potash or soda as advised, these substances are not lost, but will be retained by the bed of manure, and will be worth their cost as fertilisers in the garden. — (*American Gardener's Monthly*.)

THE MARKET GARDENS AROUND LONDON.

THE greatest wonder, perhaps, to a countryman on approaching London, is the vast extent of land under fruit and vegetable cultivation, computed at not less than 200,000 acres, the average rental of which is more than £9 per acre per annum, and 10s. per acre taxes. The most successful cultivators allow about one load of manure to every thirty square feet of land, the cost of which is about £12 per acre. The number of hands employed is, on an average, about fifty women and twenty men to every hundred acres. The wages the receive varies from 5s. to 10s. per week for women, and from 15s. to 20s. for the men; but as the greater portion of the work is done by contract, their earnings vary according to their skill and application. As spademen, they are unrivalled. By far the greatest portion of them are from Ireland. The principal vegetable crops are Asparagus, Rhubarb, Cabbage, Broccoli, Cauliflower, Lettuce, Onions, Seakale and Radishes; but every known vegetable of best descriptions only are grown. The greater part of their stocks of seeds are grown amongst themselves, so that they can at all times rely upon the crop being true to the root they require.

Perhaps the least profitable crop at the present time is Rhubarb, once the best paying of any. There are still several hundred acres grown, particularly in the neighbourhood of Deptford, where the first plants were grown by Mr. Myatt, about forty years ago. This gentleman has raised most of the approved varieties now in general cultivation.

Asparagus, from the large quantity grown, appears to be a profitable crop, and always meets with a ready sale. To describe the cultivation of each article would occupy a large book (and a valuable one it would be). I will content by giving a description of two or three of the leading articles, which will suffice to give an idea of the general method of cropping, beginning with Asparagus, a crop which succeeds well in the vale of the Thames. The ground is naturally light and sandy, well pulverised by continually stirring and cropping, and only needs to be liberally manured to prepare it for the seed; which is sown in drills in April, two drills to each bed of three feet wide, allowing two feet more for alleys, which are planted with Cauliflower, Spring Cabbage, or a little later with French Beans. On the beds, between the rows of Asparagus, are sown Lettuce, Radishes, &c. This same system of cropping is continued for three years—the length of time considered necessary—before commencing to cut the grass. The distance allowed from plant to plant is six inches (in the lines). In the spring of the third year the beds are prepared for cutting a light crop, care being taken not to exhaust the plants too much the first season. Early in March, should the weather be favourable, the beds are lined off, and the alleys turned upon the beds to the depth of about nine inches.

It is a peculiar fancy of the London consumers to have the grass grow about twelve inches long, blanched within one inch of the top. As this small portion only is consumed, it appears ridiculous that so much waste should be grown for so little of utility, when the whole might be grown for consumption, and with less trouble. In answer to an inquiry from a grower how this was, his reply was, "Why, bless ye, they wouldn't look at it in the market. It would only sell for spruce if grown green."

An instrument like a saw at the end of a long handle is used for cutting the grass. It is then very neatly tied in bundles with small willows, each bundle containing fifty or one hundred grass. At the end of the season, and when the uncut grass has ripened, it is cut down close to the surface. The beds are then forked over, and the soil levelled from the beds to the alley, which are well manured and planted with winter greens, or, as is generally called, Collets, for winter and spring supply. — (*American Gardener's Monthly*.)

VARIETIES.

WALTER SAVAGE LANDOR, one of the most accomplished and most highly endowed both by nature and by fortune of our living men of letters, has done, or rather has tried to do, almost as much for his country in the way of enriching its collections of noble trees as Evelyn himself. He laid out £70,000 on the improvement of an estate in Monmouthshire, where he planted and fenced half a million of trees, and had a million more ready to plant, when the conduct of some of his tenants, who spitefully uprooted them and destroyed the whole plantation, so disgusted him with the place, that he razed to the ground the house which had cost him £8000, and left the country. He then purchased a beautiful estate in Italy, which is still in the possession of his family. He himself has long since returned to his native land. Landor loves Italy, but he loves England better. In one of his "Imaginary Conversations" he tells an Italian nobleman:—"The English are more zealous of introducing new fruits, shrubs, and plants, than other nations; you Italians are less so than any civilized one. Better fruit is eaten in Scotland than in the most fertile and cultivated parts of your peninsula. As for flowers, there is a greater variety in the worst of our fields than in the best of your gardens. As for shrubs, I have rarely seen a Lilac, a Laburnum, a Mezereon, in any of them, and yet they flourish before almost every cottage in our poorest villages. We wonder in England, when we hear it related by travellers, that Peaches in Italy are left under the trees for swine; but, when we ourselves come into the country, our wonder is rather that the swine do not leave them for animals less nice." — (*Flowers and Flower Gardens by Richardson*.)

POETS AS GARDENERS.—Most poets have a painter's eye for the disposition of forms and colours. Kent's practice as a painter no doubt helped to make him what he was as a landscape-gardener. When an architect was consulted about laying out the grounds at Blenheim, he replied "you must send for a landscape-painter;" he might have added—"or a poet." Our late Laureate, William Wordsworth, exhibited great taste in his small garden at Rydal Mount. He said of himself—very truly, though not very modestly perhaps,—but modesty was never Wordsworth's weakness—that Nature seemed to have fitted him for three callings—that of the poet, the critic on works of art, and the landscape-gardener. The poet's nest—(Mrs. Hemans calls it "a lovely cottage-like building")—is almost hidden in a rich profusion of Roses, and Ivy, and Jessamine, and Virginia Creeper. Wordsworth, though he passionately admired the shapes and hues of flowers, knew nothing of their fragrance. In this respect knowledge at one entrance was quite shut out. He had possessed at no time of his life the sense of smell. To make up for this deficiency, he is said (by De Quincey) to have had "a peculiar depth of organic sensibility of form and colour." Mr. Justice Coleridge tells us that Wordsworth dealt with shrubs, flower-beds and lawns with the readiness of a practised landscape-gardener, and that it was curious to observe how he had imparted a portion of his taste to his servant, James Dixon. In fact, honest James regarded himself as a sort of *arbiter elegantiarum*. The master and his servant often discussed together a question of taste. Wordsworth communicated to Mr. Justice Coleridge how "he and James" were once "in a puzzle" about certain discoloured spots upon the lawn. "Cover them with soap-lees," said the master. "That will make the green there darker than the rest," said the gardener. "Then we must cover the whole."

"That will not do," objects the gardener, "with reference to the little lawn to which you pass from this." "Cover that," said the poet. "You will then," replied the gardener, "have an unpleasant contrast with the foliage surrounding it." Mrs. Hemans once took up her abode for some weeks with Wordsworth at Rydal Mount, and was so charmed with the country around, that she was induced to take a cottage called *Dove's Nest*, which overlooked the lake of Windermere. But tourists and idlers so haunted her retreat, and so worried her for autographs and album contributions, that she was obliged to make her escape. Her little cottage and garden in the village of Wavertree, near Liverpool, seem to have met the fate which has befallen so many of the residences of the poets. "Mrs. Hemans's little flower-garden" (says a late visitor) "was no more—but rank grass and weeds sprang up luxuriously; many of the windows were broken; the entrance-gate was off its hinges: the Vine in front of the house trailed along the ground, and a board, with '*This house to let*' upon it, was nailed on the door. I entered the deserted garden and looked into the little parlour—once so full of taste and elegance; it was gloomy and cheerless. The paper was spotted with damp, and spiders had built their webs in the corner. As I mused on the uncertainty of human life, I exclaimed with the eloquent Burke,—'What shadows we are, and what shadows we pursue!'" Pope too had communicated to his gardener at Twickenham some of his own taste. The man, long after his master's death, in reference to the training of the branches of plants, used to talk of their being made to hang "*something poetical*." All true poets delight in gardens. The truest that ever lived spent his latter days at New Place, in Stratford-upon-Avon. He had a spacious and beautiful garden. Charles Knight tells us that "the Avon washed its banks; and within its enclosures it had its sunny terraces and green lawns, its pleached alleys and Honeysuckle bowers." In this garden Shakspeare planted with his own hands his celebrated Mulberry tree. It was a noble specimen of the black Mulberry, introduced into England in 1548. In 1605 James I. issued a royal edict recommending the cultivation of silkworms, and offering packets of Mulberry seeds to those amongst his subjects who were willing to sow them. Shakspeare's tree was planted in 1609.—(*Ibid.*)

OUVIRANDRA FENESTRALIS.—The most rare and choice botanical acquisition which I made during this visit was the beautiful aquatic plant *Ouvirandra fenestralis*, which Sir W. J. Hooker designates "one of the most curious of Nature's vegetable productions," and which he has since described as the Water Yam or Lace Leaf. Dr. Lindley had drawn my attention to this and other Madagascar plants before my departure, and had shown me a drawing of it in the work of "Du Petit Thouars." At Mauritius, M. Bojer, a distinguished naturalist, who had formerly resided in Madagascar, very frankly and kindly informed me of the localities in which the plants I was anxious to obtain were most likely to be found. From the work of "Du Petit Thouars" in M. Bojer's possession, I copied the *Ouvirandra* in a size rather larger than the engraving; and, by exhibiting this to the natives, at length found one man who knew where it grew. His master, who had shown me many acts of kindness, allowed him to go and search for it, and after two or three days he told me he had found it growing in a stream, but that there were so many crocodiles in the water that he could not get it. The late rains, it was said, had made them more numerous at that particular place. At length he brought me a fine lot of plants in excellent condition, and I was glad to reward him for his trouble, and to take them immediately under my own charge. The natives describe this plant as growing in running streams. The root, or rhizome, is about the size of a man's thumb in thickness, and six or nine inches long, often branching in different directions, like the roots of the Ginger or Turmeric, but in one continuous growth, not a succession of distinct formations attached at the termination of one and the commencement of another. The root is composed of a white fleshy substance apparently without large or tough fibres, and is covered with a somewhat thick light brown skin. I was informed that it also grew in places which were dry at certain seasons of the year; that the leaves then died down, but the root, buried in the mud, retained its vitality, and, when the water returned, fresh leaves burst forth. The natives spoke of it as tenacious of life, and said, that wherever the earth around even the smallest portion of it remained moist, that portion would put forth leaves when again covered with water. This plant is not only extremely curious, but also very valuable to the natives, who, at certain seasons of the year, gather it as an article of food,

—the fleshy root, when cooked, yielding a farinaceous substance resembling the Yam. Hence its native name, *Ouvirandrano*, literally, Yam of the water,—*ouvi* in the Malagasy and Polynesian languages signifying Yam, and *rano* in the former and some of the latter signifying water.

The *Ouvirandra* is not only a rare and curious, but a singularly beautiful plant, both in structure and colour. From the several crowns of the branching root, growing often a foot or more deep in the water, a number of graceful leaves, nine or ten inches long, and two or three inches wide, spread out horizontally just beneath the surface of the water. The flower-stalks rise from the centre of the leaves, and the branching or forked flower is curious; but the structure of the leaf is peculiarly so, and seems like a living fibrous skeleton rather than an entire leaf. The longitudinal fibres extend in curved lines along its entire length, and are united by thread-like fibres or veins crossing them at right angles from side to side, at a short distance from each other. The whole leaf looks as if composed of fine tendrils, wrought after a most regular pattern, so as to resemble a piece of bright green lace or open needlework. Each leaf rises from the crown on the root like a short delicate-looking pale green or yellow fibre, gradually unfolding its feathery-looking sides, and increasing its size as it spreads beneath the water. The leaves in their several stages of growth pass through almost every gradation of colour, from a pale yellow to a dark olive green, becoming brown or even black before they finally decay; air-bubbles of considerable size frequently appearing under the full-formed and healthy leaves.

It is scarcely possible to imagine any object of the kind more attractive and beautiful than a full-grown specimen of this plant, with its dark green leaves forming the limit of a circle two or three feet in diameter, and in the transparent water within that circle presenting leaves in every stage of development, both as to colour and size. Nor is it the least curious to notice that these slender and fragile structures, apparently not more substantial than the gossamer, and flexible as a feather, still possess a tenacity and wiriness which allow the delicate leaf to be raised by the hand to the surface of the water without injury.

I succeeded in conveying this plant safely to the Mauritius, where it was preserved for more than a year, and seemed to thrive best in running water at a temperature of about 74°. I was happy to present specimens of it to M. Bojer, and to Mr. Duncan, the Director of the Royal Botanical Gardens at Pamplemousses. At the Cape of Good Hope, Mr. McGibbon kindly took charge of it during my absence on a journey of nearly five months into the interior, and I willingly left a plant in the botanic gardens there. Since my return to England, I have had much satisfaction in presenting specimens of this rare plant to the Royal Gardens at Kew, to the gardens of the Horticultural Society at Chiswick, and to those at Regent's Park, and to the Crystal Palace.

The plants at these places, especially those at Kew, appear to thrive remarkably well, the leaves being equal in size and beauty to any which I saw in Madagascar. Among a few comparatively small plants which I grew in a glass milkpan, with but a small depth of earth, one flowered during the past summer. The seed ripened quickly, and fell upon the earth at the bottom of the pan, where it soon germinated; and in the same pan with the parent plant seven or eight young seedling plants are growing with pale green leaves half an inch long. The length of the leaf-stalk seems to be regulated by the depth of the water; when this is shallow these are short; but when the water is deep the stalks are long, as represented by the single leaf on the side. The leaves are always just beneath the surface, but the flower-stem rises above the water.—(*Ellis's Madagascar.*)

TO CORRESPONDENTS.

SEEDLING SCARLET GERANIUMS (*Constant Subscriber*).—The best way with seedling scarlet Geraniums which have not flowered is to take a few cuttings of each in September, and to let the old plants be killed by the frost. Besides saving room, the plants from the cuttings will flower a month earlier than the old plants; and as one out of a thousand of such seedlings is not better than the parents, they are not worth the trouble of wintering. We seldom save more than two cuttings of such seedlings, and we keep them in the same small pots till planting-out time.

VINE-BORDERS, &c. (*Charles*).—Before this meets your eye you will have seen some answers on Vine-borders. 1. Concrete the bottom, if you can; put nine inches of open rubble above it, communicating with a proper drain. 2. Use good fresh loam for your border, with some dozen of bushels of old bones, a few loads of lime rubbish, and a little leaf mould for starting them in. 3. Make the border as proposed inside and out, but plant inside. 4. If your Vines are to be four or five feet apart, and grown

to one stem, we should prefer, under the circumstances, having all the border inside, and planting the Vines against the back wall, and training down the latter instead of up. 5. We should prefer a moveable wooden trellised pathway to tiles; not so much on account of air as the means of watering and adding surface dressing. 6. The site which has sunshine until two o'clock will do; but if the sun were later in the afternoon it would be better. 7. All the common annuals mostly, and especially all the Californian ones, are earlier in bloom from being sown in autumn. They also generally bloom more freely than spring-sown ones; but, of course, they do not bloom so long. 8. We have no practical knowledge of the use of sulphate of ammonia for Vines, but should prefer applying to them super-phosphate of lime. We apply house-sewage to them with great advantage.

HOGG'S EDGING TILES (*M. A. Dornes*).—We do not know of any maker keeping a stock of these. It is quite impossible for us to tell the lowest cost at which your greenhouse could be heated with hot water, so much depends upon circumstances. Get two or three estimates from those accustomed to the work.

WELLINGTONIA GIGANTEA (*J. W. Walron*).—We have noticed in more places than one that the young spray of this tree, on the lower part of its trunk, is apt to die. This induces the opinion that it is the habit of the tree to have a naked trunk; and this opinion is strengthened by the knowledge that all the parent trees in North America have the lower part of their trunks branchless.

VINEGAR (*Constant Reader*).—The best mode of making vinegar by the aid of a Vinegar Plant we are told is as follows:—Boil one stalk of Rhubarb in five quarts of water. When cold dissolve in it 2 lbs. of loaf sugar; put in the Vinegar Plant, and let it remain in a dark warm place until the acidity is completed.

TOBACCO (*E. S.*).—Cut the plant down close to the ground whilst in flower, dry it gradually, then put it into a tub or box, press it firmly, and keep in a dry place. There ought to be a box or tub full to induce a gentle fermentation.

INSECTS ON VINE LEAVES.—(*An Inquirer*).—Your Vine leaves are badly attacked by the Vine thrips. Try the Gishurst Compound.

NAMES OF PLANTS (*S. T. C.*).—The red-leaved plant is the *Atriplex hortensis*, var. *rubra*, or red garden Orache. The brown Calceolaria is commonly known as *Harlequin*. The Pyrethrum-like flower is generally called *Matricaria grandiflora*. (*W. S., Guildford*).—It is one of the *Hedychiums*, and apparently *H. Gardnerianum*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

AUGUST 29th, 30th, 31st, and SEPTEMBER 1st. CRYSTAL PALACE. Poultry, Pigeons, and Rabbits. *See*, William Houghton. Entries close Saturday, July 30th.

SEPTEMBER 22nd. BRIDGNORTH. *See*, Richard Taylor, Bridgnorth.

OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. *See*, Geo. Griffiths 7, St. Swithin Street, Worcester.

NOVEMBER 28th, 29th, and 30th, and DECEMBER 1st. BIRMINGHAM. *See*, Mr. J. Morgan, Bingley Hall, Birmingham.

N.B.—Secretaries will oblige us by sending early copies of their lists.

KILLING POULTRY IN HOT WEATHER.

THE breakfast-table has only one cry, "How hot it is!" One says the thermometer stood at 77° all night in the bedroom. Another could not sleep at all till it was time to get up. Blankets are forbidden by all. Tea must stand till it is cool. Children petition to be allowed *all milk*. Everyone is nice-hungry. Paterfamilias has charge of out-door arrangements, and Mater of all the interior. The children are hot and rather peevish. Cook declares nothing will keep. The butcher (mind, this is in the country) has no meat but that killed the same day. After all sorts of internal cogitations, with cheerful determination, but a little shade of worry and anxiety in her face, the good mother asks, "What *shall* we have for dinner?" Father shrugs his shoulders, as much as to say, "No concern of mine." The oldest boy fancies the time is come when he may speak. He declares his sister pulled his whiskers a short time since—there was something resisted, certainly, when she tried. He fancies that at school fellows learn a thing or two. "Saddle of mutton," he says, with no small importance. "Nonsense, George," says mother, "you know the mutton was so hard yesterday, no one could eat it." "Boil a ham," says one. "Too hot for salted meat," says father. "Eggs and bacon," says one of the young ones. "Little goose," says father, "is not that salt?" "Let us have a pudding," says the youngest of all, but mother shakes her head. "My dear," turning to Pater, "can you not manage to let us have some poultry?" "You know," is the answer, "those I killed for you last week were spoiled the next morning, and when I had two killed to supply the place of them, they were as hard and stringy as the mutton." "Well, but," asks mother, "how do London poulterers manage? Their fowls are always sweet and tender." "Don't know," was the answer, "write to THE POULTRY CHRONICLE."

When the weather is hot, it is plain to everyone some precaution is necessary to keep any sort of provision, spite of atmosphere, which threatens immediate spoiling.

The first care will be to choose fowls that are quite emptied of food or water; and as this cannot be the case if they are caught up out of the yard, they should be confined the night before they are to be killed, in some place where they can get neither. They will then be empty, and will keep well till the next day, spite of *any* weather.

If you were ever at law, you will recollect at the end of seventeen skins of parchment the words, "Provided always." Well, then, "provided always" the fowls are picked as soon as they are killed. The reasons for this are twofold. First, by doing it you allow the bird to get cold, which it will do, put into a cold larder, in less than two hours; but if the feathers are allowed to remain on, it will not only prevent the fowl, in such weather as this, from getting cold at all, but it will certainly spoil it. Another thing is, when the fowl is just killed the feathers will rub off; but when it is cold, half of the skin is brought away with them.

To please the palate you must begin by pleasing the eye, and it costs no more to send two or three fowls nicely to table than it does to serve them in such style that you must taste before you are sure to what class of creation they belong. A good manager will know when two fowls are likely to be wanted, and will always have them properly fasted. Let them be killed towards evening, that they may have the advantage of any cool breeze there may be. If, however, some tiresome London friend drops in with a small barrel of oysters, and a four days' visit, and you must kill those two cocks that were doomed last week, do not defer the operation till the day of eating, but do so at once; and when they are picked have them drawn and put in the larder. It is not the fowl that becomes tainted, but the food and water that it contains. For this reason, decomposition always begins at the crop, and in the covering of the bowels. The feed is there.

If anything causes the party to be deferred, roast them off. What can be so good as a cold fowl and a fresh lettuce in hot weather? Sydney Smith forgot the first when he sang the merits of the last. Try it, and

"Then tho' Turtle's dear, and Venison's tough,
And Ham and Turkey are not done enough,
Serenely full, the epicure may say,
'Fate cannot harm me,—I have dined to-day.'"

WHITBY POULTRY EXHIBITION.

August 23rd and 24th.

THE Committee of the Whitby Poultry Show have just reasons to congratulate themselves on the successful issue of their labours, for it is only rarely we have witnessed so excellent a collection of poultry at any local exhibition. When the fact is taken into consideration that three other Poultry Exhibitions took place during the same week, it is only the more extraordinary that the entries exceed 300 pens, and that there was scarcely an indifferent one throughout the whole. The arrangements were very good, the Committee being most energetic, and working well together. The pens used on this occasion were those of Turner, of Sheffield, than which none can be found more suitable for the purposes intended. The poultry being well looked after by the Committee personally, the quietude and comfort of the specimens were remarkable features of the Exhibition throughout, strongly contrasting with the negligence frequently betrayed where the supervision is left exclusively (or nearly so) to subordinates. As a watering-place Whitby stands very high; and, the season of the year chosen for the Show being that when the visitors were most numerous, it is almost needless to say the attendance was very good. Trips, both by sea and land, brought hourly accessions of sight-seers; consequently it was found impossible by those desiring to remain the night through to obtain beds on any terms—every hotel and lodging-house being completely filled. Nevertheless, the coast-scenes, which are most attractive, a brass-band contest (which took place the same day—an amusement, by-the-by, now becoming very popular in the North), and various other attractions, caused not a few to linger until too late for their return; yet even among these latter the greatest good humour and jocularly prevailed. It was not to be anticipated by those well known in poultry matters, that the adult specimens would, at this particular season of the year, be in first-rate plumage, it being their natural moulting time; yet

it certainly surprised us to find the generality of the birds in very superior feather. This is to be attributed, in no small degree, to the very favourable weather for the few weeks last past. Our remarks will be general, for to individualise where the competition was so unusually close would be almost an injustice to many whose position gave them second prizes only.

The *Spanish, Game, and Dorkings* were first-rate. In the latter classes competition could scarcely be closer.

The *Polands* though few as to entries, were also very good, particularly the Black with White Crests.

The class for *Any other Variety* boasted many unique breeds. Our attention was particularly rivetted in this class by a pen of the best Black Hamburgs we remember to have seen anywhere.

The *Hamburg* classes were, unfortunately, divided only into two classes—viz., Golden and Silver; consequently the Spangled and Pencilled of either colour competed together. We trust that in future Meetings a wider opportunity of success will be afforded competitors in these really both beautiful and useful varieties. The entries of Hamburgs were uniformly good.

The Black and White *Bantams* were superior, but the Sebrights fell short of our anticipations.

Perhaps no classes throughout the collection were more praiseworthy than the *Geese* and *Turkeys*. They were marvellous proofs of improved breeding.

The *Pigeons* were, in themselves, quite a treat, worth a long journey to any fancier: all were good, the majority far beyond customary Exhibitions.

The *Rabbits* were few, but those noticeable for "length of ears," were especially so.

At the request of the Committee, the exhibitors selected their own arbitrators, and they were appointed accordingly. The lots fell to Mr. Edward Hewitt, of Spark Brook, Birmingham, and Mr. Stead, of Leeds; but from some unforeseen family illness, the latter gentleman could not attend, consequently, the whole duty was carried out by Mr. Hewitt alone, and, we are glad to say, satisfactorily. We have but little doubt if the same energy be continued by the Whitby Committee, their future Meetings will be second to none in the northern counties; whilst it will, at the same time, yearly increase the numbers of their visitors, and, consequently the popularity of this highly esteemed locality.

SPANISH.—First, C. Brown, jun., Carver Street, Sheffield. Second, T. T. Peirson, M.D., Bridlington. Highly Commended, S. Burn, Whitby. Commended, M. Ridgway, Dewsbury. **CHICKENS.**—First, S. Robson, Pocklington. Second, S. Burn, Whitby.

DORKINGS.—First and Second, P. Barnard, Bigby Brigg, Lincolnshire. Highly Commended, S. Picard, Dintear House, near Wakefield; T. Holtby, Eastgate Cottage, Driffield. Commended, S. Burn, Whitby. **CHICKENS.**—First, H. W. B. Berwick, Helmsley. Second, T. Holtby, Driffield. Highly Commended, H. W. B. Berwick, Helmsley.

COCHIN-CHINA (Cinnamon or Buff).—First, T. H. Barker, Hovingham, near Malton. Second, S. Robson, Pocklington. Commended, W. Dawson, Hopton, Mirfield.

COCHIN-CHINA (any other variety).—First, J. Staley, North Collingham, near Newark (Partridge). Second, W. Dawson, Hopton, Mirfield. **CHICKENS.**—First, D. B. Turner, Hull. Second, J. T. Johnstone, Hull. Highly Commended, T. H. Barker, Hovingham, near Malton.

POLISH (Goldeu).—First and Second, J. Dixon, Bradford.

POLISH (Silver).—First and Second, J. Dixon, Bradford.

POLISH (any other variety).—First, J. Dixon, Bradford. Second, S. Holloway, 9, Alfred Street, Hull (White-crested). Highly Commended, Messrs. Bird and Beldon, Bradford. **CHICKENS.**—First, J. Dixon, Bradford. (No competition for second prize.)

GAME (Black-breasted and other Reds).—First, H. Adams, Beverley. Second, T. Temple, Snaiton, near Pickering. Highly Commended, R. Tate, jun., Driffield. Commended, J. Coulson, Larpool Mills, near Whitby.

GAME (any other variety).—First, H. Adams, Beverley. Second, Messrs. Bird and Beldon, Bradford. Highly Commended, C. White, Whitby. **CHICKENS.**—First, A. O. Young, Driffield. Second, A. Pease, Darlington. Commended, Messrs. Wilkinson and Sons, Whitby.

HAMBURGS (Golden).—First, H. W. B. Berwick, Helmsley. Second, Messrs. Bird and Beldon, Bradford. Highly Commended, R. Tate, jun., Driffield; J. Dixon, Bradford. Commended, H. Hodge, jun., 6, High Street, Hull; G. Hutchinson, Prospect House, York.

HAMBURGS (Silver).—First, W. Simpson, jun., Tickton, near Beverley. Second, S. Robson, Pocklington. Highly Commended, J. Dixon, Bradford. Commended, A. Walton, Whitby. **CHICKENS.**—First, J. Dixon, Bradford. Second, J. M. Cooper, Helmsley.

ANY OTHER DISTINCT VARIETY.—First, R. Smith, Norton, near Malton (Black Hamburgs). Second, W. Dawson, Hopton, Mirfield (Sultans). Highly Commended, G. Robson, 46, Saville Street, Hull; Mrs. F. Blair, Scotland (Crève Coeurs). Commended, R. Tate, jun., Driffield (Black Hamburgs); J. Dixon, Bradford; Mrs. F. Blair, Inchmartine, Inchtute, Scotland (Brahmas).

BANTAMS (Laced or Spangled).—First, G. Robson, Hull. Second, B. Wear, 9, Regent Street, Hull. Commended, J. Staley, North Collingham, near Newark.

BANTAMS (Black or White).—First, R. Wear, Hull (Black). Second, R. Tate, jun., Driffield (White). Highly Commended, R. Tate, jun., Driffield

(Black); J. Staley, North Collingham, near Newark (White); F. Calvert, Beverley (Black).

GEES.—First, Mrs. E. F. Blair, Balthayock, Inchmartine, Inchtute, Scotland (Toulouse). Second, Messrs. Wilkinson and Sons, Whitby. Highly Commended, J. Dixon, Bradford (Toulouse); J. Price, Londonderry, Bedale, Yorkshire; A. Pease, Darlington. **GOSLINGS.**—First, Mrs. F. Blair, Scotland. Second, Messrs. Wilkinson and Sons, Whitby. Highly Commended, R. Tate, jun., Driffield (White); R. Topham, Scampston, near Pickering. Commended, Messrs. Wilkinson and Sons, Whitby.

DUCKS (White Aylesbury).—First and Second, Mrs. M. Seamons, Hartwell, Aylesbury. Highly Commended, W. Burnett, Raven Hill, near Whitby; A. Pease, Darlington. Commended, R. Tate, jun., Driffield; R. Topham, Scampston.

DUCKS (Rouen).—First, T. H. Barker, Hovingham, near Malton. Second, Mrs. F. Blair, Scotland. Highly Commended, J. Dixon, Bradford; Mrs. Jordan, Eastburn, Driffield; Mrs. F. Blair, Scotland. Commended, S. Picard, Dintear House, near Wakefield.

DUCKS (any other variety).—First, D. A. Wright, Rillington. Second, S. Burn, Whitby. Highly Commended, J. Dixon, Bradford.

TURKEYS.—First, J. Dixon, Bradford. Second, Mrs. F. Blair, Inchtute, Scotland (Scotch breed). Extra Prize, T. Ward, Bannal Flat, near Whitby. Highly Commended, Mrs. F. Blair (Domesticated American).

PIGEONS.

CARRIERS.—First, W. H. Richardson, 17, Humber Street, Hull. Second, F. Mewburn, jun., Darlington. Commended, M. L. Simpson, Whitby; W. Hughes, Leeds.

ALMOND TUMULERS.—First, J. Greenbury, Beverley. Second, W. H. Richardson, Hull. Highly Commended, A. Walton, Baxtergate, Whitby.

BALDS OR BEARDS.—First, J. W. Edge, Aston New Town, Birmingham. Second, A. Walton, Whitby. Commended, A. Walton, Whitby.

JACOBS.—First, H. Child, jun., Birmingham. Second, J. H. Oglesby, 22, Humber Street, Hull. Highly Commended, W. E. Easton, Hull. Commended, J. Brown, jun., Whitby.

FANTAILS.—First, F. Mewburn, jun., Darlington. Second, S. Robson, Pocklington. Highly Commended, H. Child, jun., Birmingham.

TRUMPETERS.—First and Second, F. Mewburn, jun., Darlington. Highly Commended, R. Wilson, Egton Grange, near Whitby; S. Robson, Pocklington; S. Burn, Whitby; H. Child, jun., Birmingham.

POWTERS OR CROPPERS.—First, H. Hodge, jun., Hull. Second, G. Morgan, Whitby. Highly Commended, S. Burn, Whitby; H. Child, jun., Birmingham.

BARBS.—First, J. Greenbury, jun., Market Place, Beverley. Second, M. L. Simpson, Whitby. Highly Commended, M. L. Simpson, Whitby; D. A. Wright, Rillington.

ANY OTHER VARIETY.—First and Second, F. Mewburn, jun., Darlington (Turbits and Archangels). Highly Commended, W. E. Easton, Hull (Silver Owls). Commended, T. Baker, Whitby (Nuns); A. Walton, Whitby.

RABBITS.

LONG EARS.—First and Second, T. Stephenson, Whitby.

ANY OTHER VARIETY.—First, A. O. Young, Driffield. Second, T. Stephenson, Whitby.

SPECIAL PRIZES.

SPANISH COCK.—Prize, C. Brown, jun., Carver Street, Sheffield. Highly Commended, Miss A. Watkins, Freedom Cottage, Walkley, near Sheffield; S. Burn, Whitby; T. T. Peirson, M.D., Bridlington.

DORKING COCK.—Prize, P. Barnard, Bigby Brigg, Lincolnshire. Highly Commended, P. Barnard, Bigby Brigg, Lincolnshire; R. Smith, Norton, near Malton; J. Price, Bedale. Commended, S. Picard, Dintear House, near Wakefield.

GAME COCK.—Prize, H. Adams, Beverley. Highly Commended, H. Adams, Beverley. Commended, R. Tate, jun., Driffield (Red).

A SWEEPSTAKES FOR YOUNG AYLESBURY DUCKS.—First, S. Burn, East Terrace, Whitby. Second, M. L. Simpson, Whitby. Third, Messrs. Wilkinson and Sons, Whitby.

BRAHMA POOTRAS.

I HAVE only just seen your paper of August 9th, and in that I see a letter signed "W. H., Exeter," renewing the Brahma controversy. He says:—"I do not quarrel with any owner of Brahmas for trying it on;" by which "W. H." means, I suppose, that those ladies or gentlemen who breed Brahmas systematically, persist in trying to bolster them up as a *pure* breed, when the breeders themselves are perfectly aware that they are only a *cross*, and, therefore, cannot be depended upon in breeding.

I beg to assure "W. H." that he is quite mistaken in his estimate of the character of some gentlemen, at least, who breed Brahmas; for I cannot imagine any one worthy of credit who would willingly and openly support a *false statement*.

I have bred a good many Brahmas for the last six years, and got mine originally from Dr. Bennett, in the United States; and I can confidently assert, that I can breed light or dark, pea-comb or single, as I may choose, quite as easily as I can single or double-combed Dorkings; and I think Miss E. Watts (who will excuse me for mentioning her name) will corroborate all that I say in praise of her old favourites, as mine have been crossed almost exclusively with those of her breeding.

"W. H." appears to be very fond of hunting, which is a

character we are bound to respect in this county, where Charles Payne and the Pytchley flourish; but I cannot see how that makes "W. H." a better judge of poultry, and I very much fancy that the Brahmas, Andalusians, &c., which he speaks of as able to obtain three years ago would not have passed muster under the judgship of Messrs. Baily, Hewitt, and Co.

However, if "W. H." knows where to find that breed of Brahmas now, and they are really good, he will be able to pocket a nice sum; for I can assure him, that they are the most selling fowls of any *distinct* breed at the present day.

As I am known to many old poultry fanciers as a breeder of Brahmas from the first, I sign my name in full.—FREDERIC THURSBY, *Abington Rectory, Northampton.*

CHARACTERISTICS OF DUCKWINGED GAME FOWLS.

"I happen to have a very beautiful Duckwing Game Cock, and I want your advice as to the exact colour, &c., of the hens I should purchase to run with him, as I am anxious to rear next season some birds of the same good qualities and beauty of plumage as himself. I may describe him thus:—Black breasted, hackle and saddle light-straw colour, tail black, back rather dark maroon, shoulders same colour but rather lighter, and the bluish-purple band on the wings wide."—W. C. W.

[Your description is that of a good and pure Duckwinged Game cock. The hens should have black and white-striped hackle, grey body, and robin or salmon breasts. You do not state the colour of the cock's legs. You must be very careful to choose hens that match exactly in that respect. Be careful also that they have small, upright, and serrated combs. Every grey feather in the back should have a white shaft.

You will get this paper in time to follow our advice. Go to the Crystal Palace Show, you will see what you want directly, as there is a class of them.]

BRADFORD POULTRY SHOW.

THIS the second annual Show of Poultry, came off on the ground adjoining the Prince of Wales Inn, Bowling Old Lane, on August 19th and 20th. The Bradford Show a few years since first commenced by a committee and subscribers, but only had a short stand in that form, and was then taken up entirely as a private speculation by Mr. Hardy; and through his perseverance had become, not the largest in the kingdom, but one that ought to have that support from exhibitors which a truly honest Show deserves. The satisfactory arrangements were of such a character as to deserve insertion in any columns. First, the pens were all that could be desired, for size and safety; and one more new feature had been added to prevent any suspicion as to the judging being partial. All the pens are unnumbered until the Judge has passed his opinion, or given the prizes, so that no exhibitor knows his number of pen before being judged.

The entries in the *Game* classes were moderate in number, but second to none in quality. The *Hamburgs* were not so numerous perhaps, because the Gold and Silver-spangled formed one class. The same with the Pencilled fowls, but both represented excellent specimens. This regulation will, no doubt, be altered another year.

The *Game* fowls from Mr. Worrall were splendid. Also, the birds of Mr. Grimshaw, of Pendle Forest; and the white *Bantams* of Mr. F. Hardy were much admired.

Mr. Thomas Dodds, of Ovenden, near Halifax, was Judge, and gave general satisfaction.

GAME (Black-breasted and other Reds).—First, Mr. Worrall, Ash House, Liverpool. Second, Mr. Grimshaw, Pendle Forest. Third, Mr. Wilkinson, Low Moor.

GAME (Duckwings, Greys, and Blues).—First, Messrs. Bird and Beldon, Bradford. Second, Mr. Wilkinson, Low Moor. Third, Mr. Smith, Guisley. *Chickens*.—First, Mr. Hudson, Horton. Second, Mr. Smith, Clayton. Third, Mr. J. Vickerman, Chickenby.

HAMBURGS (Gold and Silver-spangled).—First and Second, Messrs. Bird and Beldon, Bradford. Third, withheld. *Chickens*.—First, Mr. Bottomley, Shelf, Halifax. Second, Mr. J. Gars, Wibsey. Third, Mr. Holling, Horton. Third, Mr. J. Reece, Clayton.

HAMBURGS (Gold and Silver-pencilled).—First and Second, Messrs. Bird and Beldon, Bradford. Third, withheld. *Chickens*.—First, Mr. Bottomley, Shelf, Halifax. Second, Mr. J. Gars, Wibsey. Third, Mr. Holling, Horton.

BANTAMS (any variety).—First, Mr. H. Frith, Birrly. Second and Third, Mr. F. Hardy, Bradford.

BANTAMS (any other breed).—First and Third, Messrs. Bird and Beldon, Bradford. Second, Mr. Baston, Bradford.

RED-GAME CHICKENS.—First and Second, Mr. Grimshaw, Pendle Forest. Third, Mr. Hodgson, Bowling.

GAME COCK (any age or colour).—First, Mr. F. Worrall, Ash House, near Liverpool. Second, Messrs. Bird and Beldon, Bradford. Third, Mr. Bently, Low Moor. Fourth, Mr. Hodgson, Bowling.

THE ENMITY OF QUEEN BEES.

EVERYONE has heard of the great regard that bees have for their queens, and that only one is supreme in a hive; also of the enmity which prevails between the queens. But some imagine that this hatred is less strong in young queens until they have met with the males, or are productive, as this is supposed to give them a stronger impulse for the care of the brood. This, however, is unfounded; for, according to the laws or rules of swarming, it is only the young queens that attack and destroy each other, both in the stocks and fresh swarms. Old ones seldom or never meet; indeed, they cannot, for they leave the hives a few days in advance of the births of their successors. But when bad weather, or some other cause, prevents the old queens from leading off swarms until the young ones are bred, then their fury is as great as it would have been in the next of succession—perhaps even more so; for in such cases the queens destroy the whole brood of young ones, and, consequently, prevent swarming.

This manner of proceeding is contrary to that of our wild bees, wasps, and hornets, whose queens live in unity until the colonies disperse at the end of the season. The workers and drones die off, while the queens pass the winter in a torpid, solitary state, to begin fresh nests in spring. This shows that their habits are suitable to our climate: not so the honey bee, which is always gregarious, and, consequently, its colonies often perish during winter.

I may further remark that when two queens of the honey bee are confined in a pill-box, whether they are old or young, they attack each other; which is not the case with those of humble-bees, wasps, and hornets.

Naming the last one reminds me of a correspondent's remarks, in a back number, on the hornet. Among some other interesting observations, he states, that at the end of the season he sent his hornet's nest, containing the old queen, to the Entomological Society. I have have had some experience of hornets, and I never could discover the old queen, which founded the colony, from the numerous young ones bred at the end of the season. However, I may shortly know if there is any difference in size, for I have a colony of hornets in a beehive whose queen I made wingless.—J. WIGITON.

NATURAL HISTORY.

A CLERGYMAN in Yorkshire has a two-year-old hen, Silver Pheasant, which laid on the 21st the *sixty-fourth* egg of the present season.

I WAS much interested in the graphic account given by Mr. Hewitt, of the entombment alive of the Sparrow. I saw the same thing in London some years ago. It was at the corner of Bennett Street, St. James's, a place notorious formerly for the first arrival of Martins. I was attracted by an unusual noise (it was at 4 o'clock A.M.) and spent more than an hour watching the process. The streets had been watered, and the Martins in scores fetched the material for the operation, while several prevented the Sparrows from getting out. The operation lasted about an hour.—B.

LONDON MARKETS.—AUGUST 29.

POULTRY.

An unusually small supply prevents any great change in last week's prices. The arrivals of Grouse are large, but there are so many spoiled by the heat, and so many old birds, that quotation is difficult. Some are only nominally sold, while very fresh birds make good prices. We are sorry to see unmistakable signs of much disease.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls	4 0	to 4 6	Turkeys	0 0	to 0 0
Smaller ditto	3 0	„ 3 6	Grouse	1 0	„ 3 6
Chickens	2 0	„ 2 6	Pigeons	0 8	„ 0 9
Geese	5 6	„ 6 0	Rabbits	1 4	„ 1 5
Ducks	2 6	„ 3 0	Wild ditto	0 7	„ 0 8

WEEKLY CALENDAR.

Day of M th	Day of Week.	SEPTEMBER 6—12, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock after Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
6	Tu	<i>Conostephium pendulum.</i>	29.856—29.733	72—49	S.W.	—	21 af 5	36 af 6	33 11	9	1 37	249
7	W	<i>Coronilla viminalis.</i>	29.794—29.761	74—53	S.W.	—	23 5	33 6	morn.	10	1 57	250
8	Th	<i>Cotyledon clavifolia.</i>	29.974—29.807	77—38	N.W.	—	24 5	31 6	45 0	11	2 18	251
9	F	<i>Cotyledon cristata.</i>	29.967—29.924	75—57	S.W.	.01	26 5	29 6	57 1	12	2 38	252
10	S	<i>Crassula perfoliata.</i>	29.937—29.919	73—56	S.W.	—	28 5	26 6	9 3	13	2 59	253
11	SUN	12 SUNDAY AFTER TRINITY.	30.139—30.104	66—44	S.W.	—	29 5	24 6	21 4	14	3 20	254
12	M	<i>Cypripedium bulbosa.</i>	30.198—30.064	86—40	S.W.	—	31 5	22 6	rises	(2)	3 41	255

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 73.8° and 46.3°, respectively. The greatest heat, 82°, occurred on the 8th, in 1850; and the lowest cold, 30°, on the 12th, in 1836. During the period 120 days were fine, and on 104 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

As boisterous winds, heavy rains, and other atmospheric changes occur about this time, it is advisable to draft the choicest out-door greenhouse plants to their winter quarters. Each plant to be carefully examined, dead leaves removed, and any defects in the soil or drainage of the pots to be remedied. If worm-casts, or other indications of the presence of worms, appear on the surface of the soil, by carefully turning the ball of soil out of the pot they can generally be picked out. If they are not visible on the outside of the ball, a small peg stuck in will direct particular attention to it until the intruder is removed. When staging the plants, a pleasing variety may be introduced by placing a few on inverted pots. Sufficient space to be given to each plant to allow the air to circulate freely around. If there is not sufficient room for all, the oldest or mis-shapen plants may be rejected, or wintered in a pit or vinery. When housed, all the air possible should be given in fine weather by the entire withdrawal of the lights, and only reducing the ventilation when unfavourable changes in the weather take place.

HELIOtropes.—Pay attention to keep them in a growing, healthy state for winter flowering.

MIGNONETTE.—Sow now and a month hence, for winter and spring blooming.

PINKS.—Pot *Anne Boleyn* and other sorts, to be well established before they are wanted for forcing.

ROSES.—Some of the Tea-scented and China kinds, being placed under glass, and to be repotted if requisite, will promote immediate growth and early blooming.

VIOLETS.—Take up with good balls, to be potted in rotten turf, or leaf mould and road-scrapings, in 48 or 32-sized pots, placed in a pit or frame near the glass, for flowers in the winter and early spring.

STOVE AND ORCHID-HOUSE.

As the season of active growth is now getting to a close, it is advisable to ripen off gradually the pseudo-bulbs and strong healthy shoots by keeping up a genial atmosphere, ranging from 70° to 80°, with abundance of air in favourable weather. *Cattleyas*, *Epidendrum Skinneri*, *Lælias*, *Lycaste Skinneri*, and *Odontoglossum grande*, to be kept rather cool, and to be slightly syringed occasionally. Water to be given more sparingly to all the plants except such as are growing freely. Shading to be now dispensed with as much as possible, that the plants may have the benefit of the ripening influence of the sun.

FORCING-HOUSES.

FIGS.—Continue to pay strict attention to the state of the atmosphere. Where the fruit is still swelling and ripening, slight fires will be useful in dull, cold weather, to assist in ripening the fruit; and but little syringing and watering will be required from this time forward.

MELONS.—Take advantage of the present fine weather by giving plenty of air, shutting up early, and keeping

the shoots regularly thinned. In whatever structure they may be growing, it is advisable to keep up the bottom heat by a gentle fire, or by linings.

PEACHES.—We will suppose the trees to be now fully exposed to the air night and day, and will, therefore, require but little attention, except an occasional washing with the engine, to remove insects and to allow the foliage to perform its functions to a natural decay. If a blank in the house is to be filled up, it may be done as soon as the crop is gathered from the open wall; and the crop to be expected from the same tree next season will depend upon the care with which it is removed, as there will be sufficient time for the wood to be ripened and the tree to make fresh roots, and to get sufficiently established before winter.

PINES.—Where young stock is grown in dung-pits, care to be taken by giving air freely in favourable weather, to avoid growing the plants weakly in a close and warm temperature, and by a sufficient command of heat from the linings to allow a little air to be given at night and on cloudy days.

VINES.—All long growths, whether bearing or not, to be stopped, as it is getting too late for them to be benefited by the foliage made after this period of the year. A gentle fire in damp weather is useful to keep the atmosphere dry when the fruit is ripe. The bunches to be frequently and carefully looked over and all tainted berries removed, and the foliage kept free from insects. Fire heat is also necessary where the fruit is not yet ripe, and where the fruit is cut it is sometimes necessary to keep the atmosphere dry and rather warm, to ripen the wood.

WILLIAM KEANE.

CALLS AT NURSERIES.

MESSRS. E. G. HENDERSON AND SON, WELLINGTON-ROAD NURSERIES, ST. JOHN'S WOOD, LONDON.

(Continued from page 317.)

TEN thousand cuttings of one kind struck in a nursery on speculation are a sure sign that the kind must be really, practically, and substantially, a good plant, for which there is never any lack for customers. Let a plant be good for anything, except nothing, and it is sure of a sale; a bedding plant more sure and certain than all the rest. Well, then, *Gazania splendens* is sure to go to the ends of the earth; and if it could travel with the sun the whole distance, it would never shut its eyes the whole time; but it must have sunlight to keep it awake.

The show-ground in this nursery faces the St. John's Wood Road. It is in long beds four feet wide, a mixed border at each end across the run of the beds, and a wall and wall-border for the boundaries. The soil in the beds is light, and as rich as rotten dung can make it, year after year, for generations. *Gladioluses* and the new *Phloxes*, seem to like the highest cultivation and the richest soil. *Golden Chains*, *Imperial Crimsons*, and most of the variegated *Geraniums*, do better in one-half rotten dung, and one-half light, sandy soil, when they are planted out of pots; but this ground is too rich by two-

thirds for all or most of the other bedding Geraniums. The *Model Nosegay* is all leaf there; and the *Imperial Crimson* is, by many degrees, the best grower in all the nursery—every flower in five hundred yards of it in a ribbon line stands at the same height, and every inch of it is propagated still as much as at first. The sale being so large, people actually bought it last spring from seeing a batch in bloom through the glass.

The first bed in the show-ground has a row of standard Fuchsias down the centre, is edged on both sides with large *Golden Chain*, and the main crop is of three kinds of *Verbena pulchella*, the original purple, and purple and white variegated, called *Imperatrice Josephine*; and a new scarlet and white variegated of the same, an excellent thing to match-bed the *Imperatrice*.

The next bed is all of different kinds of variegated Geraniums, of which *The Rainbow* and *Silver Chain* were the best dwarfs, and a strong-growing yellow *Golden Chain*-leaved with flowers more brilliant than those of *Tom Thumb*. The third bed was of mixed Lantanas, in specimen plants, edged with all the best kinds of Heliotrope. Fourth bed, all of the best China Asters. The fifth of magnificent *Tritoma uaria*, with an edging of *Delphinium Hendersonii*, in fine second bloom. If there are not ten thousand of these *Tritomas* here, there must be more, from seedlings to full-grown plants. Sixth bed, mixed bedding Geraniums, and sweet-scented kinds. A truss of *Pieturatum* in the centre of a *Nosegay* is my own favourite of all the Geranium tribe that way. *Dia-dematum carminatum* is the best after the old ones. *Lindleyana* is a capital masser, it is in the way of *Touchstone*. A new crimson variegated *Peltatum* is novel both ways in age and looks. *Morganii* is a good bedder also, and also *floribunda* and its *roseum* variety; while *nutans* is the best representative we have of the Geraniums of the seventeenth and eighteenth centuries.

The scarlet breed of Geraniums I regretted much being not able to judge, as the collection is very unique; but, like the unique Geraniums, they are kept in such rich soil, and so cut for cuttings, that I could not trust myself, and I never trust another about a bedder. Of the tall, strong-growing variegated, *Mrs. Lenox* and *Countess of Warwick* are the two first I would choose, as they stood there. But in the country a revolution is wanted in variegated Geraniums. They must have no flowers in edgings, else their flowers must look different to those of other Geraniums in the same bed; and a whole bed of variegated Geraniums, with a blue edge of Lobelia, ought to have a more intense colour in the flower than any of the plain or horseshoe-leaved kind. *Brilliant* comes the nearest to what is wanted. It is like putting a dairymaid for a duchess into a bed to plant variegated Geraniums with no better flowers than the plain-leaved ones.

The ninth bed was of mixed *Calceolarias*, of which the *Yellow Gem* was the best flowering yellow one, and *Beauty of Montreuil* the best brown; the *Queen of Oude* the second best brown.

The tenth bed was of mixed *Gladiolus*, edged with the finest China Asters. The eleventh of mixed experimental plants. The twelfth of best bedding dwarf Dahlias, of which the *White Unique* was the best white bedding Dahlia that I have yet seen: it is thirty inches high and very flowery. The next best was three feet, and named *Profusion*—a most excellent bedder raised by Mr. Keynes, of Salisbury: it is a mottled primrose and canary colour, edged with lilac, and is well named *Profusion*, for it was one mass of bloom. *Gloire de France* is as dwarf as the *Purple Zelinda* with the very largest purple flowers, but not so full of bloom as the other two. *Prince Arthur* is a fine crimson bedder; and *Royal Purple* comes the nearest to *Zelinda*. There is also a collection of *Pompone* Dahlias, dwarfs, more for mixed beds.

Thirteenth bed. A row of specimen plants of *Perilla Nankinensis*, and of *Calceolaria amplexicaulis*, plant for

plant. These were edged on one side with *aurea floribunda* *Calceolaria*; and on the other with *Oenothera prostrata*—a fine rich bed. This *Perilla* is a grand thing for the flower garden. It will train, or may be pruned to any size or shape, and it comes from seeds in the spring like, and as easily as, the blue Lobelias; but formerly the seeds were scarce and bad, and the plant without a cause got a bad name for rearing.

The fourteenth bed was all of the best *Gladioluses*—a splendid sight. The best and tallest in distinct colours were *Brenchlyensis* and *Don Juana*, fiery crimson; *Comtesse de Bresson*, next shade, a rosy carmine; next tallest *Magnificent*, the richest crimson; *Vulcan* and *Amabile* the same. The three would make the very richest bed if *Magnificent* were in the centre, then *Amabile* and *Vulcan* outside. *President Decaisne*, shaded crimson; *Madame Thibaud*, mottled crimson with violet; *Comte de Moray*; *Cerise*, crimson and a white throat, a splendid flower; *Vesta*, one of the tallest whites; *Bertha Rabourdie*, next best white; *Imperatrice*, a fine blush and a branching spike; *Princess Louisa*, blush shaded with cream; *Princess Frederick William of Prussia*, in the same style; *Floribundus maximus*, deeply marked with crimson bands on a white ground. But descriptions can give no idea of such varied splendour: the *Gladioli* are the richest flowers we have.

Fifteenth bed. All of the best *Phloxes*, another of the highest nobility. The richest rotten dung, and the best and freshest light turfy loam, can alone enable them to mark their places in the peerage. They also do capitally in fresh, moist American beds. The best crimson of them are—*Henry de St. Cyr* and *Madame Prial* or *Brial*; *Madame Hullet*, next shade of crimson; and *Orientalis*, the next. As they stand here is how I would have them planted. The best rose-coloured are—*Mademoiselle Bertha* and *Mademoiselle Durdam*, the latter partly a peach-blossom colour. The best lilac were—*Madame Picquette* and *Augustine Trant*. French-white, or looking so from the richness of the eye, flushing a white ground, *Mademoiselle Aurelia Dariez*, *Louis Germaine* and *Jeane Boillard*; and the best and purest white, *Boule de Nieve* and *Madame le Serf*. Instead of large numbers of *Phloxes*, I would have large masses of one kind in one place, put the colours in harmony along the place, and repeat the same over and over again, if my length of space would allow. At all events, placing or planting such fine colours at random is enough to make a man scratch his head, gnash his teeth, and look as if he had not been in bed the night before.

Next bed (16th), all *Gladioli*. Again, the next (17th), a new *Tom Thumb Golden Chain* Geranium, in diamonds, the edges of the dice of *Imperial Crimson*, two of the most unique bedding plants, as there are no others like them.

The next bed entirely of *Gazania splendens*, and to see it as I did in full perfection is never to forget the sight.

The next bed was of experimental things, of which *Stokesia cyanea* was quite new to me. This is a fine-looking, hardy perennial, herbaceous plant, with large heads of blue flowers, China Aster fashion, and it will do in pots, and blooms in the autumn till the *Chrysanthemums* come. There is another blue herbaceous plant called *Astrocephalus* something, which makes a good summer plant on a mixed border.

The next bed was of Cloves, and of these the best was *Life Guardsman*, a kind which Mr. Barnes, of Camberwell, sent out. It is a capital thing, and blooms ever so long. Then no end to the numbers and kinds of border, rock, bank, tile, stump, and basket plants, old and new, and all in regular classes as for botany itself. It would take me three weeks to go over them; therefore I must go under them, and push up one here and there. *Turnerfortia heliotropioides* and *Verbena venosa*, two hardy bedders which come from root-cuttings faster than any thing. *Nuttallia pedata*, aforesaid. *Pentstemons* of all

sorts, *Azurea*, an old species, being the best blue. *Amphicome Emodi*, a beautiful cold-frame plant, and looks most flourishing—more than could ever be said of *arguta*, the first of them.

Among the *Delphiniums* *Jules Burgois* is the finest light blue; but not of the class of *formosum*. *Aristolis grandiflora*, one of the best autumn-bloomers from the Cape, very dwarf, very bushy-like, and next the *Gazania* in looks and kindred. *Anemone vitifolia* in sheer peat is still the best of the wild *Anemones*, then in fine bloom; *Scutellaria macrantha*, a bluish mass for large patches on rocks and ravines. *Platycodon grandiflora*, for which Fortune well nigh lost his head in China. *Liatris squarrosa*, to creep out in a mass under the ledge of an overhanging cliff. *Centaurea candidissima*, which is the finest silver-leaved plant in cultivation; but keep some in a frame till you have enough to edge a bed with it, and let the Queen see it first. Blue and white *Campanula Carpatica*, which no one ever yet did properly out of Suffolk, should be divided as small as mince-meat at the end of April every year, and then to be planted as thick as grass, or thicker. One need not go far in these days to see "lazy beds"—no parish is without them. *Gaura Lindheimeri* is an elegant border mass plant when people will learn to put more than one plant in one place on a mixed border. *Gnaphalium* or *Antennaria alpina*, a native rock plant that would make an edging like *Cerastium tomentosum*. *Festuca glauca*, a grey-looking Grass, six inches high, to tuft a rock with, or to edge a rustic basket. *Statice Banduelli*, a dwarf, yellow kind, much better than *Fortuni*. *Salvia argentea*, large leaves, shaggy, with a woolly down, and large white blooms. *Calandrina umbellata*, for rocks or shelving by the seaside, to be always renewed by seeds—a real gem.

Of rock plants there is no end here; but now I cannot climb rocks as I used to do. *Ligularia*, three or four kinds, all new to us, and all for the front of rocks or ruins; they look like green *Farfugiums*, and would be just the thing in some situations. *Convolvulus althaeoides*, a purple climber for a wall, blooming all the autumn; *Helenium atro-purpureum*, with winged stems like *ambium*, and blooming like a *Coreopsis*—very curious, and a yard high; *Rudbeckia hirta*, the best of them, and a border plant; *Echinops* and other curiosities in the rigid Thistle way; and *Carduus affinis*, a Silver Thistle; *Indigofera dosua*, a half-hardy wall-trainer, like the *Swainsonias*; double *Petunias* against walls. A new variegated *Arundo* from China will look a tree of the Gardener's Garters some day.

But, good gracious! what is that on yonder border? Be these the flowers afore the flood, or what? Why, man alive, these are the new Japan "Indian Pinks" which made such a sensation at the "Park" Show. What will the florists say of them? They will knock all their Pinks to *gymericks*; they are the most beautiful flowers of all the *Dianthus* tribe, and when they come to be Carnation and Picotee fashion, no mortal will look at the older ones. Every flower is as wide and flat as a two-shilling piece or wider, and as highly crimson as the richest spot that ever was seen on *Dianthus latifolius*, or any other like it. There is also a dash of light colour over some of them, and some are fringed on the edges. Their habit is excellent; they look as if crossed between the European Pink and the Indian Pink. They came from Japan through a Russian or a Cossack, and they will be shortly sold in seeds from the original stock, thanks to Lord Elgin for opening the trade of the Japan florist.

A *Deodara viridis* was new to me. It is as green as the Larch in spring, and as different from the common *Deodara*, in shade of colour, as the Yew is from the Scotch Fir. *Swainsonia Osborni*, *galegifolia*, *atro-purpurea*; and the best white bloomer of all greenhouse plants, *Swainsonia galegifolia alba*, all blooming most beautifully, seedling-like weeds against low walls, and as healthy-looking as Vetches. They should never be in

pots after bedding-out time till the frost comes, and no garden should be without them.

The new *Hypericum oblongifolium* blooms abundantly, and as late as September. *Laurustinus Lowardi*, after Her Majesty's supervisor at Osborn, looks a giant; and I am sure it is the right thing, else Mr. Loward would not have it called after him.

There is a good beginning here of the best old hardy and half-hardy bulbs—the greatest want in all our gardens, which, with our improved knowledge of the wants of plants, we would soon supply if we had access to such collections. *Argyropsis candida*, and *Zephyranthus Atamaseo*, and *rosea*, with *Cooperia tubispatha*, were all in bloom in the open ground that day, and all in one bed; and I was told that *Cunningia trimaculata* bloomed there this spring, the rarest and one of the prettiest dark blue little bulbs ever cultivated. Also, *Trichonema cruenta* and *speciosa*, than which we have nothing so elegantly rich.

Here we stumbled on the wreck of one of the best vessels in the florists' navy; but having lost it about twenty years back, they were never able to give us hybrid perpetual Phloxes. It is called *Phlox eriterion*, and when well done it blooms nine months in the year. A rich purple, with a white stripe in each petal.

In the pits were all the greenhouse plants, not out of doors. The spring *Cyclamens* were just potted and cradled. Everything looked healthy and clean. An immense number of bulbs from South Africa, some of them I never saw. *Lilium giganteum* has crossed with one of Groom's hybrids. *Vallota* or *Imatophyllum miniatum* has crossed with *I. Laubantiæ*, a *Chyrtanthus*-flowering and newer kind. Good news this! *Berberis trifurcata* was in bloom, a tassel of fourteen separate flower-spikes—a fine thing. *Portlandia platantha*, just bloomed, white funnels four inches across. *Dipteraeanthus affine*, the splendid scarlet, *Petunia*-like bloomer figured in the last number of the "Illustrated Bouquet," is a free, healthy-looking plant, and seems easy to grow and bloom and propagate. Lots of it are on sale. But the stoves were all too hot after a hot day's hunting abroad, and too damp for dry livers, so we only ran through them.

The new Grass, *Spergula*, is all over the borders, and fields are laid down with it next the pond where they get the water from, and there is no doubt or hesitation about the thing answering to the very letter. On light soil it wants the roller often, but on solid clay hardly ever; but the more it is rolled the better it grows.

D. BEATON.

SIMPLE HINTS ON PROPAGATING BEDDING PLANTS.

SCARLET GERANIUMS.

MANY inquiries having been made on this subject, I thought I could not do better than give them ventilation in our serial. Simple as the matter is, the great variety of modes resorted to tend to bewilder the amateur who is merely a beginner, and who, when he visits a gardener, has all his eyes open to that particular operation in which he is most interested. "Mr. A. tells me, that at one celebrated place the man had large cuttings of Scarlets, with almost every leaf on them, and he was laying them in a border full in the sun, by making a slit with the spade, laying the cuttings in the slit, and pressing the earth to them. At another place the leaves were reduced, but still fully a half left, and the workman was dibbling them in rows on a border. At one place this kind of work was done in July; at another in the middle of August, and here are you engaged on the same work in the end of August! One gardener, again, puts his cuttings in pots, and places them in a spent hotbed, or close pit, and here are you putting them in boxes that will hold two or three score, so as to move all at once! And what puzzles me most of all, here are you using very small cuttings,

and scarcely a leaf on them, but the small ones near the point, and who says more than you do on the importance of foliage? I get quite bewildered."

In answer to such queries, I would state that that system is best that answers best with the operator, and suits his circumstances best. For instance: early and large cuttings, on the whole, cost least trouble in getting them made into plants; and in July and August they will strike freely enough anywhere out of doors. The very size, however, that these plants will attain before housing time renders that housing a difficult matter where every inch of room under glass is most valuable, until you can turn part out of doors under protection in March. It is on that account chiefly, as well as sparing the flower-beds, that I use smallish cuttings, and make them later than some people do. If the cuttings are nicely rooted before the end of autumn, however small they are, they will just occupy less space in winter, and they will be large enough by bedding time. I do not practice pricking out in borders in the open air quite so much as I used to do. When time is valuable, you get the cuttings quicker in by that mode; but then they are all to be taken up, under ordinary circumstances, and that, of course, involves some labour, and also unsettles the young plants for a time. Had I such a thing as cold pits, or pits with a hot-water pipe, however small, round them, I would insert almost all my bedding cuttings in them at once, and thus save a vast amount of moving labour in the season. The first cost, in such a case, would be true economy, if a few years are considered.

The ease with which Scarlet Geraniums are propagated has made the question of leaves and their number a matter of less importance, as the succulence of the stem enables the cuttings, under ordinary circumstances, to absorb as much moisture as they perspire, especially with a little rough shading during the heat of the day.

This leaf-retaining matter, however, is the most puzzling affair with some of our inquirers, and right views should be entertained respecting it; otherwise, treatment that the Scarlet Geraniums would bear with impunity would quickly ruin other cuttings, and young plants too. For instance: because young cuttings of Geraniums stood the sun, therefore small pricked-off seedlings of Primulas must do the same; but the result of such a conclusion would soon teach another lesson. Without entering upon the general functions of leaves, it will be necessary for our purpose here to state, that every leaf on a healthy plant, during sun and heat, perspires watery juices, and this is met by its absorbing moisture from the stem and roots, and also, under favourable circumstances, from the atmosphere surrounding it. When you sever the cutting from the parent plant, when both are in a vigorous, growing state, you at once cut off the main source of supply, and the leaves perspiring far more than they can absorb, the cutting in the open air must inevitably perish. The succulence of the stem of the Geranium constitutes here the reservoir of safety. In any particular plant, not succulent, that we wish to raise from cuttings, just in proportion to the number of leaves left must be our extra care by bell-glasses, hand-lights, and careful shading from sunlight, to prevent the leaves perspiring, and, on the other hand, force them to absorb moisture from the enclosed atmosphere round them; so that they will feel as little as possible their separation from the roots and main stem. Bring this to bear even on the Geranium cuttings, and theory as well as practice will at once, in our opinion, demonstrate that leaving all or great part of the foliage on, when the cuttings are to stand chiefly out of doors, or with slight protection, is attended with no advantage, but rather the reverse, besides entailing extra labour and unsightliness. Such full-leaved cuttings will not stand long under such circumstances before all the larger leaves will droop and wilt. In doing so, they rob the stem of a portion of its juice, and by-and-by they must be all picked off to remove the

unsightliness, and very likely loosen the cuttings at their base. When most of the leaves are removed, the perspiring organs are, to a great extent, removed. A slight sprinkling of water, now and then, from a fine syringe or brush, prevents the stems being unduly dried, and the real juices in the succulent stems are encouraged at once to produce new leaves at the points, and roots at the bottom, and there is neither the unsightliness nor the trouble of picking or removing withered foliage. On the other hand, did I wish to strike Scarlet Geraniums as quickly as possible, and could give them, conveniently, a close, moist atmosphere, then I would keep on nearly all the leaves; but I would never permit one to flag or decay.

This is the mode that should be adopted with scarce kinds; and though I have no faith in leaves alone and singly making plants, there is nothing to prevent any one, by such process, making a plant of every fresh leaf that has an embryo bud, and a small piece of the stem at its base. For all rough propagating I consider that leaving all, or nearly all, the leaves on first, unnecessarily exhausts the cutting, and then creates the annoyance of removing them when withered. These are trifling matters; but the mischief is, that what rough treatment is found to answer with Scarlet Geraniums is apt to be employed with other things that will not stand it, because they have not got such a succulent stem to fall back on. The matter will be simplified if we look upon every leaf on a cutting as a robber of its stored-up juices, unless we can place that cutting under circumstances in which it will be forced to absorb as well as perspire, and in which the former, if possible, shall exceed the latter.

In propagating, I like to get all the variegated kinds in by the first week in August; and if the cuttings are good, I do not mind them being small—say from two to three inches. The plain-leaved and *Horseshoe*, free growing kinds, I like to have in from the middle of August to the middle of September. The plants will be healthier, and keep better over the winter, if they never have any artificial heat before being housed. A calico sash, or a glass light, shaded, and with plenty of air, especially at night, will hasten the striking process. R. FISH.

HARDY FLOWERING HERBACEOUS PLANTS.

(Continued from page 320.)

ÆTHIONEMA.

Nat. ord., Brassicaceæ. Linn. Tetradynamia siliculosa.

GENERIC CHARACTER.—*Calyx* erect. *Silicle* obovate or oval, compressed, sub-emarginate; valves navicular, winged on the back; cells one or two-seeded. *Longer filaments* either toothed or united.

ÆTHIONEMA HETEROCARPUM (variable-podded). *Silicles* two-celled, two-seeded, obcordate, crowded, valves winged at the back, entire; *leaves* linear, crowded, lower ones spreading. 6 in. Purple. July. Armeria.

A. MEMBRANACEUM (membranous-podded). *Silicles* two-celled, two-seeded, obcordate, crowded, valves winged on the back, entire; *leaves* linear, distant, strictly adpressed. 6 in. Lilac. July. Persia.

A. MONOSPERMUM (one-seeded). *Silicles* one-celled, one-seeded, indehiscent, emarginate at the top; *leaves* oval or obovate; *longer stamens* toothed. 6 in. Pale-purple. July. Spain.

A. PARVIFLORUM (small-flowered). 6 in. Lilac. July. Persia.

A genus of hardy, low-growing, alpine plants, suitable for rockwork, or to grow on hillocks on a dry exposed border. They require a light sandy loam mixed with a little peat. Propagated by seeds and cuttings.

Sow the seeds as soon as they are ripe in light sandy peat and loam, either in shallow pans or in the open border, covered very thinly, and watered gently in dry weather till the seedlings are up. Then, as soon as they can be handled, transplant them in patches of threes, either on the rockwork or on the border where they are to grow.

Cuttings.—Take the cuttings off in April, plant them in sand under a hand-light, and, as soon as they are rooted, treat similarly as described above for the seedlings.

AMELLUS.

Nat. ord., Asteracea. Linn. Syngenesia-superflua.

GENERIC CHARACTER.—*Involucre* hemispherical, imbricated. *Receptacle* paleaceous. *Pappus* simple; of the ray paleaceous; of the disk setaceous. *Florets of the ray* undivided.

AMELLUS SPINULOSUS (spiny). *Plant* hoary; *leaves* bi-pinnatifid, cut-toothed, segments linear, rigid, mucronate; *heads* lateral and terminal, clustered. 2 ft. Yellow. August. Missouri.

A. VILLOSA (long-haired). *Plant* very villous; *leaves* sessile, oblong, acuminate, entire; *heads* axillary, on short stalks. 1 ft. August. Missouri.

Two recently-introduced handsome plants, with showy yellow flowers. They require a rather strong loamy soil.

Propagated by cuttings of the hard stems, taken off in May and planted in sand in a shady place till rooted, then transplanted singly where they are to bloom.

ANTHYLLIS.—KIDNEY VETCH.

Nat. ord., Fabacea. Linn. Monadelphia Decandria.

GENERIC CHARACTER.—*Calyx* ventricose, five-toothed, persistent. *Vesillum* larger than other petals. *Filaments* dilated at top. *Legumes* stalked, hidden by the calyx, one to three-seeded.

ANTHYLLIS GERARDII (Gerard's). *Plant* herbaceous, diffuse; *leaves* pinnate, glabrous, leaflets five to nine, oblong-linear, mucronate; *heads* fifteen to twenty-flowered. 1 ft. White. July. Provence.

A. MONTANA (mountain). *Plant* herbaceous, tufted; *leaves* pinnate, and, like the branches, white from villi, leaflets fifteen to nineteen, oval-oblong; *heads* solitary, on long peduncles. 1 ft. Purple. July. S. of Europe.

A. ——— ALBA (white mountain). 1 ft. White. July. S. of Europe.

A. ONOBRACHOIDES (St. Foix-like). *Plant* herbaceous, rather erect; *leaves* pinnate, smoothish, leaflets seven to eleven, linear; *heads* ten to twelve-flowered. 1 ft. Yellow. July. Spain.

A. POLYCEPHALA (many-headed). *Plant* herbaceous, procumbent; *leaves* pinnate, and, like the branches, villous, leaflets twenty-three to thirty-five, oval-oblong, equal; *heads* numerous, sessile, distant, alternate. 1 ft. Yellow. July. Barbary.

A. POLYPHYLLA (many-leaved). *Plant* herbaceous, erect; *leaves* pinnate, villous, leaflets eleven to fifteen, lower ones oblong, upper ones linear, terminal one larger; *heads* aggregate. 1 ft. Yellow. July. S. of Europe.

A. VULNERARIA (Woundwort). *Plant* herbaceous, rather erect; *leaves* pinnate, with five or more unequal leaflets, the lower ones smallest, and the terminal one much the largest; *heads* twin. 1 ft. Yellow. July. Britain.

A. ——— ALBIFLORA (white-flowered). 1 ft. White. July. Britain.

A. ——— HIRSUTISSIMA (hairiest). 6 in. July. Red. Europe.

A. ——— RUBRA (red-flowered). 1 ft. Red. July. Britain.

A. WEBBIANA (Webb's). *Plant* erect, white from villi; *leaves* pinnate, leaflets seven to eleven, oval-acute, terminal one largest; *heads* sub-compound, bracteate; *bracts* cuneate, roundish, hardly multifid; *calyx* sub-cylindrical. 1 ft. Pale rose. July. Teneriffe.

A genus of rather showy pea-blossomed hardy perennials. The British species are not common. They require a light, dry soil. Propagated by cuttings and divisions of the plant.

Cuttings.—Several species have only a single tap root, hence they cannot be divided. Take cuttings of these (short side-shoots are the best), in April, plant in sand in a shady place, and, when rooted, transplant them in freshened soil, where they are to flower.

Division.—Take up the plants in March, divide them into moderate-sized pieces with roots to each, plant them immediately in either a fresh place, or in renewed soil, where they are to grow permanently. They will thrive in the same spot longer than most other plants.

T. APPELEY.

(To be continued.)

THE SCIENCE OF GARDENING.

(Continued from page 324.)

THE STEM AND BRANCHES.

ALTHOUGH every member of the vegetable form, from the minutest root to the most fragile spray, has its epidermis, cellular integument, bark, woody fibre, and medullary matter,

yet as these are most apparent in the stem and branches, they can be commented upon most readily in this chapter, devoted to the consideration of those vegetable members.

The first of these, the *epidermis*, is analogous to the human cuticle, or scarf skin, being the external envelope of the whole surface. It is commonly transparent and smooth, sometimes hairy; in other instances hard and rugged, occasionally so abounding with silice, or flint, as to be employed as a polisher for wood, and even brass. In every instance it is a network of fibres, the meshes of which are filled with a fine membrane. The epidermis appears to be designed as a preservative from the injurious effects of the atmosphere, to regulate the quantity of gaseous matter and moisture respired, and as a shield from the attacks of animals, &c. It is certainly devoid of sensation. The texture of the membrane between the meshes varies much in different species of plants. In very succulent plants it is so contrived that it readily allows the absorption of moisture, but prevents perspiration. Such plants are, consequently, well qualified to inhabit hot climates and dry soils. Neither is it at all impossible that it possesses the quality of allowing the passage of some gases, and rejecting others, as the bladder of animals permits water to pass through its texture, but is impervious to alcohol. In old trees it cracks, and in many cases becomes obliterated, the dead layers of bark performing its offices. Its growth is slower than that of other parts, and its powers of expansion, though great, occasionally cannot equal the rapid enlargement of the parts it encloses and defends. This is very frequently the case with the stem and branches of the Cherry; the tree is then said by gardeners to be hide-bound, and is relieved by making longitudinal incisions. It is still more apparent in the fruit of the Cherry and Plum: when rain falls abundantly during their state of ripeness, their pulp swells so rapidly, that in an hour or two the epidermis of every ripe drupe upon a tree will be cracked.

Gardeners are very prone to scrape with no gentle hand the bark of their fruit trees; whereas every care should be taken not to wound its surface unnecessarily, and never to reduce its thickness until all danger of severe frosts is passed.

The epidermis regulates the evaporation from a plant, and preserves it in some degree from the detrimental sudden changes of temperature to which our climate is liable. The Birch (*Betulus alba*), has more films of epidermis than any other European tree; and it ascends to greater heights in the Alps, and approaches nearer to the frozen zone than other trees of the same climates.

It is quite certain that stems and branches can imbibe nourishment through their epidermis. If a branch be cut off, and a wetted towel be wrapped round the bark, yet without touching either the cut end or the leaves, that branch will retain its foliage verdant much longer than another branch similarly cut off, but not enfolded by a wetted towel. So all gardeners know, that enclosing the stems of newly-transplanted large trees with moss or hay-bands, and keeping these moist, is an efficient mode of enabling them to bear the removal. A branch, or a whole tree, may be killed by painting over its entire epidermis with gas tar. Showing either that the admission and emission of gases and moisture being prevented, or that creosote or other poisonous matter is absorbed from the tar, death is the consequence.

We could give many similar results of experience, but will only add further that Mr. Hales states, as the result of many experiments, "that the air enters very slowly at the bark (?) of young shoots and branches, but much more freely through old bark; and in different kinds of trees it has very different degrees of more or less free entrance."—(*Vegetable Statics*, i., 160.)

Knowing these facts, and knowing also the benefit a tree derives from keeping its epidermis freed from lichens, we have never doubted that its clean and healthy state is of as much importance to a plant as is a clean and healthy skin to an animal.

Some phytologists, however, have viewed the epidermis in a light altogether different, and have regarded it as being the effect of mere accident or position,—that is, as being nothing more than a scurf formed on the exterior of the pulpy parenchyma, and indurated by the action of the air. This was the opinion of Grew and Malpighi, which, though it does not seem to have met with any very general reception, has been revived of late years by M. Mirbel, who, professing to be dissatisfied with the analogy that has generally been thought to exist between the epidermis of the animal and the vegetable, contends that the latter is nothing more than the indurated surface of the parenchyma, from which it differs only in such circumstances as are occasioned by position. If it is more or less transparent,—if it is tougher or firmer in its texture than the parenchyma or any of its parts, it

is only because it is constantly exposed to the influence of light and air, and to the contact of such bodies as float in the atmosphere; but it is not to be regarded as constituting a distinct organ or membrane, or as exhibiting any proof of its being analogous to the epidermis of animals.—(*Trait. d'Anat. et de Phys. Vég.*, i. 87.)

Yet, if it is true that the epidermis is nothing more than the pellicle formed on the external surface of the parenchyma, indurated by the action of the air, then it will follow that an epidermis can never be completely formed till such time as it has been exposed to that action. But it is known that the epidermis exists in a state of complete perfection in cases where it could not possibly be affected by the external air. If you take a Rosebud, or bud of any other flower, before it expands, and strip it of its external covering, you will find that the petals and other enclosed parts of the fructification are as completely furnished with their epidermis as any other parts of the plant, and yet they have never been exposed to the action of the air. The same may be said of the epidermis of the seed while yet in the seed-vessel, or of the root, or of the Paper Birch, which still continues to form and to detach itself, even though defended from the action of the air by the exterior layers.—(*Keith's Lexicon.*)

Liebig has gone a step further even than Mirbel. He obtained the following analyses:—

Ashes of Wood of the Fir HERTWIG.		Ashes of the Bark of the Fir HERTWIG.	
1000 wood gave 3.28 ashes.		1000 bark gave 17.85 ashes	
Soluble Salts 18.72.			
Carbonate of soda	. . . 7.42	Soluble salts 2.95	
Carbonate of potash	. . 11.30		
Chloride of sodium	. . . }		
Sulphate of potash	. } Traces.		
Insoluble Salts.		Insoluble Salts 97.05.	
Carbonate of lime	. . 50.94	...	64.98
Magnesia	. . . 5.60	...	0.93
Phosphate of lime	. . 3.43	...	5.03
„ magnesia	. . 2.90	...	4.18
„ manganese	. Traces.	...	
„ peroxide of iron	1.04	...	1.04
„ alumina	. . 1.75	...	2.42
Silica	. . . 13.37	...	17.28
Loss	. . . 2.26	...	1.79
<hr/> 100.00		<hr/> 100.00	

Because the wood and the bark "differ essentially from each other, both in their composition and characters," Liebig concludes that "the inorganic ingredients of the bark are obviously inorganic substances, expelled by the living organism," and "are in so far true excrements, that they arise from living plants and play no further part in their vital functions; they may even be removed from them without thereby endangering their existence. It is known that certain trees throw off annually their barks: this circumstance, viewed in its proper light, shows that, during the formation of certain products formed by the vital processes, materials arise which are incapable of experiencing a further change."

This conclusion is certainly illogical; for, from similar premises it might be concluded that the shell of the lobster and of other crustaceæ are "true excrements;" and, moreover, it is a conclusion refuted by all experiments upon its functions, and by the fact, that to denude a plant of its epidermis, and to keep it so denuded, is a treatment certainly followed by disease and decay.—J.

(To be continued.)

NEW BOOKS.

CELESTIAL OBJECTS.*—This is just the kind of book which should be found in the literature of every science. It has for its object directions how to use a common telescope, and pointing out what advantageously may be looked for in the heavens. It is a book of recreations in astronomy. The author has exceedingly well executed what he proposed to accomplish, as will be appreciated from the following extract, which we select for its brevity; but there are many other planets, the moon espe-

cially, about which the objects he points out for a telescope are much more interesting.

"MERCURY.

"This planet, though at times readily visible to the naked eye, is but seldom seen from its nearness to the sun; and often lies too near the horizon for the telescope. A well-adjusted equatoreal-stand will find it by day, but its small diameter of less than 3000 miles subtends as a mean not more than 6" or 7"; and ordinary observers will not see much where professed astronomers have usually found little. But as these pages may possibly fall into the hands of some whose advantages or enterprise may lead them to attack a neglected object, the following points may be specified:—

"1. The *Phases*. These will be easily seen, and are only remarkable because the breadth of the enlightened part has been sometimes found less than it should be from calculation. Schröter noticed this, and it is confirmed by Beer and Mädler; but their explanation of a dense atmosphere making the terminator, or boundary of light and darkness, faint, is inadequate, as their observation was before sunrise, when the duller part of the disc would still be very luminous.

"2. The *Mountains*. At the close of the last and beginning of this century, Schröter, of Lilienthal, in Hanover, a most diligent observer, and his assistant Harding, obtained what they deemed sufficient evidence of a mountainous surface in the occasional blunting of the S. horn, some minute projections on its outer edge, and an irregular curve of the terminator; they gave the inferred elevations a height of nearly eleven miles perpendicular.

"3. The *Atmosphere*. The decrease of light towards the terminator, and the occasional presence of dark streaks and spots, indicated to the same astronomers a vaporous envelope, where they thought they even saw traces of the action of winds. From a combination of these appearances they deduced a rotation in 24h. 0m. 53s. on an axis inclined about 70° to its ecliptic. But further observations are needed. In De La Rue's magnificent Newtonian, ten feet focus and thirteen inches aperture, constructed by himself, the planet has a rosy tinge.

"*Transits* of Mercury are comparatively frequent; they will be visible in Europe in 1861, 1868, 1878, and 1894. The planet breaks in upon the sun as a dark notch, sometimes preceded, it is said, by a penumbral shade; but the earliest impression will be missed, unless the exact point of the sun's limb is known, and kept central in the field. As it advances, the part of Mercury not yet entered on the sun may be rendered visible by being projected upon the 'corona' or illuminated atmosphere, which is so conspicuous in total solar eclipses, and has been known to relieve dark bodies in front of it, such as Mercury, Venus, or even a portion of the moon. On finally entering the sun, or beginning to leave it, the planet has been seen lengthened towards the limb; probably from irradiation, which often enlarges luminous images at the expense of contiguous dark spaces. Fully on the sun, Mercury appears intensely black; some astronomers have given it a slight dusky border, others a narrow luminous ring; both, probably, deceptions from the violent contrast and the fatigue of the eye, especially as others have seen neither. But whatever is seen should always be recorded. A stranger appearance is better attested—that of a whitish or grey spot on the dark planet, seen by Wurzelbauer, 1697, Schröter, Harding, and Kohler, 1799; Fritsch, and others, 1802; Moll and his assistants, 1832 (when Harding clearly distinguished two spots, and Gruithuisen suspected one); and recognised in England and America, 1848. No terrestrial analogy will explain a luminosity thus visible close to the splendour of the sun; but the testimony seems irresistible. Schröter and Harding ascribed to these spots a motion corresponding with the rotation which they subsequently inferred from other indications.*"

THE GISHURST COMPOUND.

IN THE COTTAGE GARDENER of August 23rd, you answer a correspondent's query whether Gishurst Compound contains arsenic. As others of your readers may have had similar doubts, perhaps you will allow me to answer them. Gishurst Compound has never contained arsenic, nor any other ingredient poisonous or injurious, except to small insects and fungi. Its most active

*A similar phenomenon was observed on Venus in the transit of 1761 (Append. ad Ephemer. Astron. 1766, 62), for the explanation of which, in the additional light derived from the transits of Mercury, the Abbot Hell's theory of optical illusion seems quite insufficient.

* *Celestial Objects for Common Telescopes*. By the Rev. T. W. Webb, M.A., &c. London: Longman, Green, Longman, and Roberts.

constituent, as I explained in a letter you did me the favour to print in your number of February 8th, is sulphur.

Your correspondent speaks of his Grapes becoming spotted after an application of the Gishurst. I had, some time back, a similar complaint from a large Grape grower, accompanied by some spotted Grapes. On showing them to my father's gardener, he said it was a disease known as "rust," which had attacked our Grapes before Gishurst was born. At first I thought he was right; but on examining a house which had been attacked with virulent mildew checked by Gishurst, I found berries with spots on those parts on which the solution would have hung longest, and had dried. I scraped off some of the brown coating, which, on being tested in our laboratory, showed a trace of sulphur; and, therefore, though I had often applied a stronger solution without any discoloration, I could not but suppose that the spots had been laid at the right door.

A short time back I visited an old and most scientific gardening authority. After showing all his own wonders,—and great, indeed, some of them were,—he said, "Now you shall see what your Gishurst has done for me." First, we came to an immense bed of dwarf Cherry trees, which he said had had their young wood saved after a most severe attack of black aphides. Then we proceeded to his vineries, some of which, without any remedies having been applied, had never had a symptom of mildew. Others had had a slight attack, which the Gishurst had checked. The berries here looked clean and healthy. At last we got to what I was told was the triumph of the Gishurst—a house in which mildew appeared to have intrenched itself. Last year all the Grapes had been utterly destroyed, in spite of sulphur applied in all known ways, of the fullest strength, and by most experienced hands. This year the enemy again making the attack in as great force as ever, my friend determined to try the new arm against it, and gave a strong dose of Gishurst, and repeated this several times. The Vines did not seem the worse, and the Grapes were full, and swelling well; but there was the brown spot at the lowest part of many of the berries. We examined this brown crust carefully: it could be easily scraped off, leaving the skin clear and sound underneath, and did not seem at all to interfere with the Grapes swelling; so my friend, in his satisfaction at the Grapes living at all, made rather light of the unsightly crust.

We may assume, then, that under certain circumstances not yet understood, Gishurst does cause this objectionable appearance, which, probably, arises from the heat evaporating rapidly the water of the solution, precipitating ingredients previously dissolved on the lowest part of the fruit.

The way to cause the least amount of precipitate, is to use weak solutions, and to be careful to use none but rain water in making them; thereby avoiding the lime thrown down from hard water.

Last autumn, for experiment's sake, I tried syringing with Gishurst almost ripe Nectarines and Plums, the trees of which had been attacked by red spider, and ate the fruit a day or two afterwards without tasting the slightest trace of Gishurst. But on Grapes it is different: the berries hang so closely together that the Gishurst once among them does not come out easily, even after syringing with clean water. I have to-night (August 25th) been eating some Grapes, the Vines of which were syringed all over with Gishurst a week ago, and though the Grapes have not the brown spot, there is a sign of deposit where the solution has dried on some of them, and a twang of sooty taste perceivable, though, I am assured, after a syringing with plain water had been applied.

I fear this long letter may be considered an intrusion, and will, therefore, at once conclude it by saying, that all I can be responsible for in the Gishurst is, that it contains no dangerous ingredient, that sulphur is present in the form which should, *theoretically*, be at the same time the most searching, and yet most safe, and that the practice of many eminent professional and amateur gardeners for many months coincides with this theory. In speaking of any gardening trials of a mere smatterer like myself, I would attach no weight to my opinions, unless they involve the watching results and tracing them to their cause, which is, perhaps, better learnt in a laboratory and among chemical processes than even in a garden.

It has been suggested that the Gishurst may vary in its composition, and thus account for differences in results obtained under apparently similar circumstances. This cannot be, as it is compounded in that department of our manufactory where the slightest error can, must be, and is, guarded against. For

example, our glycerine, the prescription of which, for internal use, depends on the confidence of medical men in the care taken in its preparation.

It would be easy to lower the proportion of the most active agent in Gishurst, so as to do away with the possibility of injury to any plant or fruit. Indeed, I have this evening (August 25th) been syringing some mildewed Rose trees with a solution made with Gishurst of only half power, as an experiment; but as so many gardeners have now accustomed themselves to the standard strength, and as, I believe, a little care and experience will make amateurs as easy and confident in its use as I now feel myself, we do not propose any reduction of strength, unless there be a decided call for it.—GEO. WILSON.

QUERIES AND ANSWERS.

CONSTRUCTING A VINERY

"After reading *THE COTTAGE GARDENER* for some years, and remembering what a very old gardener told me—that it is as easy to grow Grapes as Gooseberries, I am going to try. I send you a sketch of a building I intend to turn to a cool vinery, the object being to get Grapes of some kind and at some time. The red-ink lines are meant to show where I intend to put my drain. I intend to brick and cement the bottom of the Vine-border. The three feet of glass in front I shall be able to open for air; and I intend to put wooden air-doors in the back wall, four of them, two feet long and one foot deep, to swing on the centre of each, and open with a weight and wire. The top will be fast, and glazed with rough plate glass, if it will do.

"I intend to put a flue made of firebrick, as marked on the sketch, with fire-clay cover. Coals are no object in heating, being only 2½d. per ewt. I have some four-inch iron pipe. If it is not very difficult to manage a warm-water boiler, I could use them for heating, but think I could manage a flue better. I will put the pipes in, if you advise me to do so. You must tell me what length it will take—I have a great quantity.

"If you think my plan will answer, please say what kind of Vines you think will grow in our part of Lancashire (Boltou-le-moors). I do not care what sort, shape, size, or colour the berries are, so that I can grow them.

"You ask for answers about chickens. I am sure I should have lost all mine if it had not been for your receipt of beer and bread. I have never lost one since I saw it in your paper."—WILLIAM.

[The proposed arrangements will do. The airing will be sufficient. Supposing all the Vine-borders to be inside, is there any reason that the roots should not go beneath the path, or even below the stage? Well managed, the width of two feet and a half will grow Vines successfully; but only on a free use of rich top dressing and manure waterings. We approve, under such circumstances, of making the bottom of the border root-proof and water-proof; but your drain must be lower than the bottom of the border, and there should be some open rubble above the bottom before the soil is laid on, so that there be no stagnation of water at the bottom. It is economical to make the roof fast. You may have rough Hartley's glass, if you prefer it; but, in your case, we should prefer good British plate: and our reasons are that you will have more light for Vines in summer, and more light in winter for plants. There can be no objection to a stage in the house. You will thus be enabled to keep many things, and flowering plants, in winter at a temperature by fire heat under 45°, until the Vines start. When the Grapes ripen, the fewer plants there are in the house the better before they are all cut. In summer, with four Vines established, plants will do little good unless a few half-hardy and tender annuals. The object aimed at will be to get all the principal plants out before the Vine-leaves make the shade too dense.

We have no objection to a flue of firebrick: except for the fireplace we should judge firebricks too expensive for such a purpose. Next to firebrick, rather soft brick stands heat best; but, if very soft, they are apt to crumble from the alternations of the house from heat to cold, and from moisture to dryness. If you had bricks of any kind to purchase, we would decidedly use the four-inch pipe you have got. You will not heat the house cheaper; but then there will be no trouble in flue-cleaning, unless that round the boiler. A small boiler of Roger's conical, or a small amateur's retort of Thompson's, would suit you, costing

about two guineas. There would be little difficulty in fixing the pipes; though some joints, most likely, you would have to purchase. If the bricks are beside you the flue will answer well enough, if built and managed with common care. For a cool vinery about thirty feet of four-inch pipe will be required. If forced a little, half as much more: and if forced early, about sixty feet. The four Vines we would recommend are *Royal Muscadine*, *Black Hamburg*, *Victoria Hamburg*, and *West's St. Peter's*—that is on the principle that your vinery is to be a cool one.]

PROPAGATING FARFUGIUM GRANDE—BLACK GRAPES NOT COLOURING.

"Please to state the best way of propagating the *Farfugium grande*. And the reason why the *Black Hamburg* Grape has not coloured well this season, but often shrivels when it is nearly ripe. I wish, also, to know why the *White Muscat* Vine does not bear fruit every season, when grown in the same house as the *Black Hamburg* Vine? We commenced forcing in March, and ranged from 55° to 65° temperature, by fire heat; and up to 90° by sun heat."—W. P. H. B.

[The best way to propagate *Farfugium grande* is to divide the plants in the spring, just the same way as a Rhubarb plant is divided, so as to have a crown, or top eye, to every division.

The reasons why *Black Hamburg* Grapes do not colour are three. The first and most common is the root being bad from various causes, as a cold, damp bottom, a very rich border made many years, and now in one close solid mass, like a Dutch cheese, or an extremely sandy bottom. The second cause of not colouring is leaving too much fruit on the Vines; and the third cause is an insufficient surface of healthy leaves for some years back, caused by too-early killing of most of the leaves by red spider, or by want of moisture at the roots, or by scorching with too much sun and bad glass.

The *Muscat* Vines being under the same influences as the *Hamburg*, and being very much more exotic, so to speak, they cannot bear up against them so well as the *Hamburg*, and so carry a poor crop but once in two or three years.]

PLANTS FOR A SHALLOW AQUARIUM.

"I have a fountain in the house supplied with water from a cistern. Can I make an aquarium of it. The largest basin is three feet and a half in diameter, by four inches deep. If so, will you please tell me what plants would do to fill it with? The basin is iron."—E. J. EDWARDS.

[An iron tank, or cistern, is scarcely the thing for an aquarium, as the iron will certainly rust and render the water unfit to grow plants. If you can have the inside lined with Roman cement, then plants would thrive well. Perhaps the iron is galvanised, and if so, then you might put in plants safely. You say, "I have a fountain in the house." Do you mean your dwelling-house, or is it in a greenhouse? If in the dwelling-house, it is doubtful whether any plants would grow satisfactorily, because they require light as well as plants that grow in soil out of doors. If in a greenhouse, then you may plant any of the following plants; only you must remember that they require something besides water to grow in, such as some good loam and leaf mould. A layer of at least two inches of this soil is necessary. Our correspondents would oblige us by giving full particulars with their queries, as our answers (which we are desirous should meet every case) cannot be either so fully useful or satisfactory to our querists, unless we have full information. Your fountain appears to be of a good, neat, design, and if attention be given to supply pure fresh water, and to keep the surface clear of scum and confervæ, no doubt you may grow plants in the basins. One point more. Cover the soil with pieces of gravel or stone, and then you may introduce many species of marine insects, and even small fish, &c., and thus render your tanks instructive and amusing.

GREENHOUSE AQUATIC PLANTS (suitable for a small tank).—*Aponogeton distachyon* and *A. monostachyon*, small plants. *Calla Ethiopica*, tall plant. *Polygonum amphibium*, nine inches. *Vallisneria spiralis*, six inches. *V. laminosa*, nine inches. *Hydrocotyle purpurea*, six inches.

HARDY AQUATIC PLANTS (suitable for a small tank in the house or open air).—*Aponogeton distachyon*, four inches. *Bu-*

tomus unbellatus, two feet. *Hottonia palustris*, floating. *Menyanthes trifoliata*, one foot. *Ranunculus aquatilis hederacea*, six inches. *Nymphaea odorata*, four inches. *Hydrocotyle vulgaris*, one foot.]

NOTES FROM PARIS.

THE hot weather which has lasted so long this year has been very injurious to the newly-formed gardens, and in particular to the large trees that were planted on the Boulevards in the winter. It has been necessary to place screens, or blinds of stout bunting, on the south side of all the large Coniferae in the Champs Elyssées, and keep them well syringed and watered night and morning. But, though they have been treated with the greatest care, it is probable that some of them will have to be removed.

The greater number of the large trees have been treated somewhat differently, owing, of course, to their great size. Their trunks have been thickly covered with moss up to their lower branches; the moss is enveloped with strong bunting tied all round, and surmounted with a sort of funnel in zinc, so as to lead the rain down into the moss, and preserve as much humidity as possible to the trunks when there is no rain. The branches are freely watered in the morning by means of a hose attached to the nearest water-pipe; and in Paris there are water-pipes in almost every street at convenient distances. These pipes are opened every morning, and fresh water continues to run in the gutters for two or three hours, carrying off all nauseous matter to the main sewers.

Fig. 1 is a sketch showing the trunk of a large tree enveloped in moss and bunting, and a funnel at the top. Several of the large Chestnuts planted round the Bourse in the spring of last year have suffered severely; and though every care has been taken to keep them well watered, it seems scarcely possible for some of them to recover.

When I was in the country some short time ago I noticed a very simple form of garden-seat, of which the enclosed sketch will give a better idea than the longest description (fig. 2). It is made of common deal, and may be put together with great facility and but little expense.



Fig. 1.



Fig. 2.

All who have lived here only for a few days will admit, I think, that the Parisians show a good deal of taste in setting off or arranging their goods in the most attractive manner. It is common to have large plants at each side of the shop-door, and numerous flowers in the window. Even the meat in the butcher's shop may frequently be seen studded with flowers, and the intervening spaces filled with tall Rose trees, Hollyhocks, Fuchsias, and other sorts.

The very firewood in the wood-yards is generally piled up so that the façade may represent a number of ornamental figures;

and I have often seen Melons and Vines, covered with fruit, growing along the sides. The poorest vendors in the street have usually some notions of ornament; if it is only a few Cherries that are sold for a sou they are always displayed in the form of a small bouquet, worked up with the leaves of Lily of the Valley, one or two Pansies being stuck in at the top. Two or three leaves are left open at the summit, but all the others down the



sides have their points tied in. I enclose you a drawing of this Cherry bouquet, should you think it worth an engraving on a smaller scale.

THE SQUARE LOUVOIS.

This pretty little square is now, after some considerable delay, in the course of being finished. It is open to the public; but the walks are scarcely completed on one side, and the men are occupied in layering Cotoneasters all round, just within the railing. The clumps, however, are well filled with Rhododendrons about two feet high, Rockets and China Asters. It is not the custom here to lay turf, but to sow the ground, and, of course, there will be no green lawn for a week or two, and that will be chiefly round the magnificent fountain in the centre. This is one of the smallest public gardens in Paris; but, no doubt, it will be enlarged in the course of a year or two, when the leases of some houses on the west side shall have expired. The high dead wall, however, of the Imperial Library, which extends more than a hundred yards on one side of the Rue Richelieu, is by no means an ornament to the place, and makes the garden look smaller than it really is. Yet it seems almost impossible that this unsightly wall can be permitted to remain much longer when all the rest of Paris is being changed and embellished.

"COFFEE AS IN FRANCE."

This was, and perhaps still is, the heading to an advertisement in some of the London papers: and if I had no other guide, it would be sufficient to lead me to the conclusion that English people believe that coffee in France is much better than coffee in England. But I do not speak of coffee that is bought at the grocers and made at home, and which is, perhaps, as good here as in London. It is rather the mado coffee of the cafés and restaurants to which I allude, and which is a black ugly mixture, having no resemblance to what English people are accustomed to drink at home, or in the coffee-houses. Several cups of coffee, as made in England, may be taken at breakfast. But here one

small cup of *café noir*, as it is well named, is considered sufficient; and then, as if to make it palatable, it is the practice to put three or four lumps of sugar and a glass of brandy in it. This is called a *gloria*. For my own part, I have found that such coffee has an injurious effect on the system: yet, whether at the table of the *Bourgeois*, or at the public *café*, it is the same,—black, strong, exciting, and unwholesome. Except among a few of the wealthy, tea is not used here; and it is not astonishing when we consider that the most inferior quality costs six and eight francs a-pound. There are only a few dealers who sell it at that price. The usual prices are ten, twelve, and fifteen francs a-pound. So much for custom-house duties about which Mr. Cobden has just spoken so eloquently. Although people here have nerves for the strongest *gloria*, they are quite amazed when they see tea properly made; for what they call tea is just so much hot water slightly coloured, and which has not the least flavour. In cases of headache and similar ailments, they are accustomed to drink what is called *tisane*, which is simply a decoction of herbs. The dried flowers of the common Mallow and Orange leaves are generally used in this way in vast quantities. The roots of Couch Grass are also highly esteemed for the same purpose. Whatever healing effects the *tisane* may have, it does not cost much, and it is easily made, as many of the flowers and leaves may be had for two sous as will serve several times, and it is only necessary to boil them a minute or so in a pint of water. The use of herbs here is in great favour, and, of course, a great many people are occupied in gathering and selling them.

FRENCH WINE.

In speaking of tea and coffee, I may, perhaps, be permitted to make a few remarks on what forms the most important article of consumption here in the way of drink. In the first place I may observe, that there is but very little difference between the composition of breakfast and dinner in Paris. It is always the same round of bread, soup, meat, vegetables, and wine, with salad, fruit and *café noir*. Ham and eggs are seldom used; tea and toast never. About eight or nine in the morning it is the custom to take a cup of *café noir* mixed with milk, and this is called *café au lait*. It is taken with a little bread, to which butter is sometimes added. This forms the first meal. What is called breakfast is taken in the middle of the day, and, as I have just noticed, it is more like a dinner than anything else.

Now, what is the wine of which we have all heard so much, and which, morning and evening, takes the place of our tea? Is it anything like the port or claret that is drunk at the tables of the well-to-do people in England? Decidedly not. On the contrary, it is a sour, unpalatable drink, and seldom fails to produce drowsiness or other unpleasant effects, especially during the day, and from which even those who are accustomed to it rarely escape. It is, perhaps, true that such are the effects of wine in general, whatever the quality may be; but it is particularly true of the wine in common use here, called *Vin ordinaire*, and which may be had as low as ten or fifteen sous a litre. It is considered very good in Paris at a franc, but this includes the duty. In the provinces, where there is no duty, the price is much less. The *Vin ordinaire* is the common drink of the French people; but there are several other sorts which are also common enough—as *Vin de Bordeaux*, *Vin de Macon*, *Vin de Bourgogne*, &c. These are of a much finer quality, and, of course, they are dearer. The *Bourgogne*, especially, is pleasant enough, having a flavour something between claret and port wine; *Bordeaux*, however, is more popular among the people, because it is stronger, and it is to be had very good at two or three francs a litre.

In summer there is what is called *la petite bière*, or *Bière de Paris*—a wholesome and refreshing drink, which I think preferable to wine for everyday use.—K.

SPRING-FLOWERING BULBS FOR A RHODODENDRON-BED.

"Are there any spring-flowering dwarf bulbs that would do well planted as an edging to a Rhododendron-bed which is entirely of sandy peat? If so, could you give me a list of say twelve sorts, and also say how deep they ought to be planted? Would the Scilla tribe, Crocus, and Snowdrop answer?"—PAUL RICAUT.

[Every one of the spring bulbs will bloom and grow, ripen, go to rest, start again and again in blooming vigour in Rhododendron beds, whether they be in boggy spongy peat, in sandy peat,

or in sheer yellow loam. One might think there is something in Rhododendrons which of itself causes all hardy bulbs to do better with them than when grown any other way. All the Lilies which will grow out of doors will do so all the better in Rhododendron-beds. All Gladioluses the same. All dwarf Tulips, Crocuses, Scillas, Snowdrops, and every one of the low dwarf Narcissuses. But there is one rule to be observed in planting any or all of these in an American bed, and that is to have every one of the bulbs twice as deep as they ought to be in loam. The Snowdrops and the Crocuses to be exactly two inches deep. Scillas and Dog's-tooth Violets one inch and a half. Early Tulips and Hyacinths, Lilies and Gladioluses fully three inches; and the measurement is from the surface to the top of the bulbs after the soil is settled with rain. The soil under them, and all round them, must be dug, and kept from the roots of the Rhododendrons at all times and seasons. Rotten leaves, and the *fresh* parings of grass sides and verges in the spring make the best compost for Lilies and Gladioluses to help them on in these Rhododendron-beds—one spadeful at the bottom of a good hole for a large patch of five, seven, or eleven bulbs.]

AMONG THE HOPS.

THERE was a time, not very long ago, when the popularity of a popular beverage was seriously threatened.

A rumour, rife in cities, reached the ears of men in their country retirement that they were the unconscious victims of misplaced confidence.

Their beer, so charming to the eye and so gratifying to the palate, was pronounced to be slow poison to the stomach. This was a terrible possibility for Englishmen to entertain. It was reluctantly believed by some, and the bright pale tonic was banished from its wonted place of honour at lunch and dinner.

Others debated on the subject while they drank it. Happily, for the patience of the former and the health of the latter, the accusation was found to be false.

The reassuring fact that neither strychnine nor any other subtle and pernicious agent is employed in producing the bitterness of beer—even of that pre-excellent which Burton gives us—was established beyond the sphere of controversy. And not only so much has been proved, but also that less dangerous, but, at the same time, to the consumer unknown means, have no share in the important work.

Now, then, we may drink our beer with confidence as well as present relish: and, when we would describe the secret of its potent charm, may speak and write of Hops.

Entering as these do into the composition, in a greater or less degree, of all our malt liquors, they must possess for us some interest.

Even the total abstainer from fermented drinks cannot shut his eyes to the importance of a crop, for the growth of which 47,600 acres of the finest land in England—chiefly in the home counties and in Herefordshire—are at this moment under cultivation, and upon which the amount of duty charged in the year ending June 1859 was £254,557.

But, apart from such considerations, Hops are worthy of notice for the beauty they possess in the maturity of their growth; and, indeed, for the fact that something of instruction or amusement may be extracted from the observation of each stage of their existence—from the first planting of the sets to the final process which unites them with the sweet malt liquor, thenceforth to be recognised only as a pleasant, wholesome flavour. There is, too, another aspect under which this subject presents itself—a social one. They who are conversant with the steps by which Hops arrive at the perfection necessary to their ultimate use, know that they afford labour to laborious hands throughout the greater portion of the year.

Digging, planting, poleing, tying, picking, drying, pocketing. These are some of the operations necessary to their well-being and preparation for the market.

The digging—on the stiff land of Kent and Sussex especially—is very hard work, and, for the most part, admirably done.

The planting, in soil strongly manured, is by sets—four or five in a station, or, as it is called, a hill; the hills being a few feet apart every way.

The first year all that is required for the support of the climbing plant is a stake of no great length. Subsequently poles, commonly of Chestnut, but in some localities of fir, are necessary, and these of from twelve to eighteen feet in height.

Sharpened at the larger end, they are firmly fixed, to the number of three or four, into each hill; and the Hop Vines, when they have well started in the spring, are tied to them with green rush-bands.

Women are employed at this work, which they perform with marvellous rapidity and neatness.

Throughout the summer the plantations need constant attention; the grounds, or gardens, being kept by good cultivators in the cleanest and most trim condition.

August and September arrive; and the social bearing of Hop-growing becomes more evident, or rather more important.

The employment which it gives has hitherto been confined to the ordinary staff of the farm; but now it is extended far and wide.

Hop-picking calls into the country pale families from the heart of London. St. Giles, Clerkenwell, Whitechapel, and Shore-ditch send forth their hundreds to breathe, for a month or so, the free uncontaminated air of Heaven, and to drink water innocent of sewage.

An Irish host, from which the ancient uniform,—battered, brimless hat, and swallow-tailed coat,—has not yet wholly disappeared, is seen upon the field of action.

The towns and villages adjacent to the Hops are represented there.

You shall see something, by-and-by, of the work for which so many are annually called together.

Meanwhile, stroll into this garden, still untouched. It is in its third, and, like the Strawberry, its best year of cropping.

Several varieties are cultivated, of varying value in the market, all having a common origin,—the wild Hop (*Humulus lupulus*), of the hedgerows.

The variety before you is a strong-growing one.

Look down the vistas—new at every step.

Look up and around at the wondrous growth of vine and Hop.

You must “stoop to conquer,” for the luxuriance overhangs the path, falling down, like some fair girl's hair, in its very wealth of golden beauty.

Gather a good specimen of ripened flowers from any bough. It will be longer than the longest white finger of your hand, my gentle friend. These, that hold this pen, are hard and brown, and they have been out-measured in a Sussex Hop-garden by a Sussex Hop.

Press the seed-vessels, and let your nose be buried for a second in their depths. There lies the raw material for the bouquet of the drying-floor and factor's sample: there is an essential principle of the beer that Britons love.

Now, go a little further on, into that garden where the picking has been begun.

It is a phase of country life worth studying.

It must be studied on the spot.

There have been but very few faithful pictures, drawn or painted, of this scene, so quiet, yet so busy.

Photography, valuable as it is, must of necessity be a failure where life is the chief characteristic to be caught and kept.

Notice that tall fellow. He is known as a “pole puller,” and is armed with two formidable-looking weapons. One of these is a sharp-edged hook attached to a long handle.

With this he severs the vine,—“bind,” or “bine,” he calls it,—almost close to the bottom of the poles. With the other, a simple contrivance of wood, having a short blunt hook inserted near the end, he lifts, leverwise, the poles out of the ground.

There are bins and baskets, of various materials, forms, and sizes, across which the laden poles are placed. The Hops are picked from their stems into these receptacles by a rapid movement of the fingers,—a kind of scratching,—which long experience makes amazingly dexterous.

You may see representatives of every class in life and every age about those bins. Whole families are there, from the grandmother to the latest infant, who is consigned, except at mealtime, to the custody of another child but a few years its senior.

Some of the workers are pretty “well to do,” and can afford to dress suitably to the weather and the work, besides providing for the necessities of the day: but it is not so with all.

Some of them are very poor,—extremely poor.

Those vagrants, English and Irish, whose encampments are in the fields close by, may be looked upon by an unaccustomed eye as such.

Rags, indeed, are fashionable among them. The younger members of the families are shoeless and stockingless, and their uncovered hair has been changed by the sun to hay; but they are regular tramps, and used to this sort of life.

One of their order is left at home, in the camp, to watch the chattels, and prepare the night's repast; and there is a jovial element in their experience.

The poor, whose poverty is painful to the heart of one who knows their history—how much more painful to themselves is known only to the Omniscient—belong to another class.

Regard closely that fragile-looking widow, who stands with her child at the small sacking-covered frame. There is no sign about her of the endurance of physical hardship made easy by habit. Nor can you trace the equipment necessary to supply its place. The girl is somewhat better clad; but it is plain that it is through the mother's sacrifice, for the warm shawl has seen better days, and the thick shoes are old, and mended, and too large.

The autumn sun may make the mother forget that she is ill-provided for her task; but soon—it may be “to-night”—the autumn rain shall fall pitilessly upon her and her little ones; two of whom are not old enough to work, and, drenched, they will return to the town, and to their home, desolate in its unpreparedness. There will be no fire to boil the water for the cup of poor tea, almost their sole refreshment, until it has been kindled by trembling hands, which should be casting off wet garments; and this, when their meal to-day has been of a quality and quantity that a professional beggar would reject as coarse and insufficient.

There are very many whose Hop-picking experience in a wet season is such as theirs. It is pleasant to think of the possibility that eyes looking out from some kind heart, may rest upon this page; and that, through its reminding, one may be added to the number of those who hold out a helping hand to their Hop-picking poor. But the sound of laughing voices, and glimpses of soft colours, tell you that there are others near you in the Hop garden of a different class and sunnier fortunes.

When the day is fine, you will always meet visitors upon that scene who have come to play at work;—butterflies among the bees. And we would not have them absent.

It is a pretty conceit for that bright-eyed girl to fancy she is helping her old nurse to fill her bushel; but the shilling in the old dame's pocket makes up for her dear young lady's want of skill, and adds warmth to the expression of the already warmly-felt “God bless you, Miss.”

Yonder is the exciseman's “Hop assistant,” busy with book and pencil where the Hops are measured. He represents Her Most Gracious Majesty's Inland Revenue Office.

The pay for Hop-picking ranges from 1d. to 2d. the bushel: more frequently it is 1½d. The quick, stained fingers soon strip off a shilling's worth; and the sum earned in a season is considerable—more, probably, than would have been obtained for any other work.

Independently of this, there is certainly a fascination about Hop-picking with all its vicissitudes.

It is not uncommon for domestic servants to find something in their place which does not suit them just about this time:—a short-sighted policy, doubtless; but there is evidently a temptation not easily resisted in the thought of “Hopping.”

Night is closing in upon the Hop-garden, and the Hop-pickers are leaving their bins.

The picked Hops, being packed in large bags, are carried to the oast, a building where the operations of drying and pocketing are carried on.

Travellers through Kent and East Sussex are familiar with those round brick structures, surmounted by large cowls which are always turning their backs upon the wind.

After a short interval the gardens are re-dug, and the poles stacked into wigwam forms—a striking feature in the winter landscape.

The dried vine-stems are not without their uses. Many a bundle finds its way into an awkward hedge-gap; and not unfrequently they may be seen doing duty as a lee wall for a straw-yard, or even the roof of a cattle-shed.

From this slight sketch of the outlines of Hop-history there must not be omitted the planter, to whose fortunes the welfare of the crop is so important.

We have no largely-cultivated plant, the successful cultivation of which is so precarious.

No failure in agricultural produce is so fatal to the producer.

Each acre of Hop ground is the repository of a large amount of capital. A large per centage upon this may be gained by the investment.

The reverse is proportionately severe. This reverse is brought about by various causes. The weather may be, during a long

period in the early summer, unpropitious for the growth of the plant; while, at this stage, it is frequently much injured by the ravages of a grub.

Further on in the season, blight, atmospheric and insect, will sometimes destroy the vigour of the plantations of a whole district.

Later still, when the blossom is heavy, the wind may cut off a corner from a garden, or make a road for itself through the middle of it.

Influencing the crop, these things affect also the market. The consequences of a fluctuating market are well known, and are always serious in proportion to the extent and suddenness of the fluctuation.

Hops may be worth £30 per cwt.; they may go begging at 30s.; and the space of time between these changes may be very short. The result is self-evident. Let, however, one example show it and conclude my story.

There is a village, not a hundred miles from London, where a Hop-planter realized £10,000 by the produce of one season.

His neighbour would do better with his year's growth.

He kept his Hops out of the market, looking for a further rise.

The union workhouse was the home of his grey age, and he was buried in a pauper's grave.—G. R. T.

BRITISH POMOLOGICAL SOCIETY.

A MEETING of the British Pomological Society was held at St. James's Hall on Thursday last. Robert Hogg, Esq., Vice-President, in the chair.

The following gentlemen were elected ordinary members:—

Lord Chief Baron POLLOCK, Hatton, near Hounslow.

D. THOMPSON, Esq., 15, Lower Brook Street, London.

Mr. THOMAS OSBORNE, Nurseries, Fulham.

Mr. SCOBIE, Holland House, Kensington.

Mr. MCBRY, gardener to R. Ellison, Esq., Sudbrooke Holme, Lincoln.

Prizes were offered at this Meeting for the best late Strawberry, and for the best dish of Golden Hamburgh Grapes, but there were no exhibitions of either.

A prize of *Two Guineas* was offered by H. G. Bohn, Esq., for the best, and one of *One Guinea* by Mr. James Fraser, of Lea Bridge Road, for the second best, collections of fruit. There were three competitions, the best of which was that from Mr. Whiting, of the Deepdene, and the second from Mr. Newton, East Lodge, Enfield Chase, and the prizes were awarded accordingly. In Mr. Whiting's collection were excellent bunches of *Trebbiano*, and *Calabrian Raisin Grapes*. The former is a very excellent late White Grape; the bunches large and well shouldered; the berries large and somewhat oval, with a thick skin, firm, crackling flesh, and of excellent flavour. It hangs as late as the month of March, and requires fire heat. *Calabrian Raisin* is a longer, looser, and narrower bunch, but not equal in flavour to the former. The *Bellegarde Peaches* and *Violette Hâtive* Nectarines in Mr. Whiting's collection were very fine, as were also the several dishes of Plums.

Mr. Rivers brought a *seedling melting Peach* of very great excellence. It was larger than Peaches generally are, and of a pale creamy-yellow colour, with a slight tinge of red here and there over the surface. The flesh white, and deep red at the stone, very juicy, sweet, and sugary, with a brisk flavour. It ripens a fortnight later than the Royal George. This was very interesting as having been raised from the old worthless cling-stone *Pavie de Pomponne*. Another *seedling Peach*, from the same gentleman, was still more interesting from having been raised from the *Pitmaston Orange Nectarine*. This was remarkably rich in flavour. It is medium sized. Skin greenish-yellow, covered with thick down; mottled with red on the shaded side, with a blush and mottles of darker red on the side next the sun. Flesh yellowish-white, very red at the stone, with a rich and piquant flavour and fine aroma.

G. S. Wintle, Esq., of Gloucester, sent a *seedling Peach*, said to have been raised by Mr. Holbert, of Gloucester. It fruited this season for the first time; and, although the fruit was over-ripe, one specimen was sufficiently perfect to show that it is a fruit of great excellence. It is medium sized, and the flesh very sweet and deliciously flavoured. The leaves have no glands, and the flowers are small.

A communication was read from Mr. Bye, gardener to Mr. Wintle, recommending the use of boughs of trees to be laid against wall-trees in spring to retard the bloom, in which he

stated that he had successfully applied them this season, and the result was an excellent crop of fruit.

F. G. Graham, Esq., B.A., of Cranford, brought a seedling *Grape*, which he considered was a hybrid between the Royal Muscadine and the Muscat. The bunch was not sufficiently ripe, but the Muscat flavour was very marked. It was thought to be very like *Chasselas Musqué*, and when it is considered that that variety frequently reproduces itself from the seed, it is not at all improbable that it is so like that variety as not to be held distinct.

H. Webb, Esq., of Red Hill, brought some excellent specimens of *Grosse Mignonne* Peach, which were highly flavoured. They were shown as exhibiting the quality of fruit grown on an exposed situation on the South Downs, and in a light, sandy soil. He also exhibited specimens of *Belle et Bonne* Pear, as exemplifying the usual condition of that worthless variety. *Flemish Beauty* and *Yellow Ingestre* Apple were good.

Mr. Spary, of Brighton, brought a miscellaneous collection of fruit, and some excellent specimens of *Black Hamburgh* Grapes. Among the former were well-grown and highly-flavoured dishes of *Bellegarde* Peach and *Elruge* Nectarine.

Mr. Swinerd, of Minster, near Ramsgate, sent three varieties of Nuts, which were ascertained to be *Pearson's Prolific*, *Cob*, and a large, long-bearded variety, which appeared to us to be *Lambert's Nut*.

Mr. Richard Ellison, of Sudbrooke Holme, near Lincoln, through Richard Frankum, Esq., placed at the disposal of the Council the sum of *Ten Pounds*, to be applied as the Council may see fit, as a premium for the best seedling *Grape*; the competition to take place at a Meeting afterwards to be appointed to be held in 1860. The thanks of the Meeting were unanimously voted to Mr. Ellison.

Henry G. Bohn, Esq., intimated his intention to repeat his prize of *Two Guineas* for the best collection of Fruit to be exhibited at a Meeting to be held in 1860, and the thanks of the Meeting were unanimously voted to Mr. Bohn.

It is gratifying to find that the number of members being private gentlemen and nurserymen who have given their consent to the annual subscription of £1 instead of 10s., amounts to fifty-four. There are many still from whom returns have not been received; but it is hoped that those who approve of the course that has been adopted will lose no time in sending in their adherence, that the Council may, as soon as possible, form an estimate of what the annual income of the Society will amount to.

It having been intimated to the Council, by the proprietor of St. James's Hall, that in consequence of certain alterations about to be made in that part of the building where the Society meets, he will not be able to afford the same accommodation as he has done hitherto, a Committee was appointed at the last Meeting to provide another place; and as it was now reported that much more commodious and convenient premises could be obtained at the Hanover Square Rooms, the Committee was instructed to conclude with the proprietors of that establishment. All Meetings, therefore, subsequent to that of the 22nd of September, will be held in the Hanover Square Rooms.

Applications were received from seven candidates for the Secretaryship, and it was agreed to accept the services of Mr. William Keane, of Kensington, subject to the approval of the next Meeting of Council on the 22nd inst.

VARIETIES.

GARDENS IN MAURITIUS.—The habitations of the more respectable or wealthy classes in Port Louis, and almost all except those in the central and crowded parts of the town, are of stone, coloured white or yellow, and protected from the sun by verandahs or lattice-work. They stand within enclosures, opening by wide and ornamental gateways into the principal streets. These courts are planted with flowers, and shaded by the most rare and beautiful of tropical trees. Amongst these, the most umbrageous are the Bread-fruit, the Badamia, and the Tamarind, with its lofty light-green foliage; while the most elegant are the Bamboo, the Cocoa-nut, the Date, and other species of Palms. Mingled with these and other tall-growing species are numbers of choice flowering shrubs and trees, including *Ixoras*, and the *Hibiscus*, with blossoms of every hue; the *Poinsettia pulcherrima*, with its large, rich, deep crimson bracts; the Sangdragon or *Pterocarpus draco*, at times a large tree, presenting one mass of bright yellow bloom. In other parts are seen the *Eugenia* or *Jambosa*, with its pink and myrtle-like blossoms; the *Kigelia*

pinnata, Chandelier tree, with its purple bell-shaped flowers, resembling those of the *Cobaea scandens*; as well as the *Bauhinia*, and more than one species of *Erythrina*. But conspicuous beyond all the rest is the stately and gorgeous *Poinciana regia*, compact-growing and regular in form, but retaining something of the *Acacia* habit, rising sometimes to the height of forty or fifty feet, and, between the months of December and April, presenting, amidst its delicate pea-green pinnated leaves, one vast pyramid of bunches of bright dazzling scarlet flowers. Seen sometimes over the tops of the houses, and at others in an open space, standing forth in truly regal splendour, this is certainly one of the most magnificent of trees. Its common name is *Mille-fleurs* or *Flamboyant*. The *Poinciana* and the large beautifully yellow-flowering *Colvillia*, as well as some fine and fragrant species of *Dombeya*, and other kinds, were introduced from Madagascar by M. Bojer, who also brought the *Kiglia* from the coast of Africa in 1824. Besides these and other large-growing trees, there are numbers of gay shrubs and flowers, either indigenous, or imported from India, Java, and the adjacent isles, from South America, Africa, and Madagascar, as well as from Australia and Europe. The double and single-blossomed *Oleander*, *Nerium splendens*, the bright pink-leaved *Draena*, are grown in almost every garden; and near one of the public roads I sometimes stopped to look at a splendid *Brugmansia*, growing, not as we see it in England, in spacious and tasteful conservatories, but by the side of a ditch that drained part of the town, with numbers of its large white trumpet-shaped flowers hanging in clusters about the windows of a printing-office, and perhaps cheering, by the beauty of their form and colour, the labours of the workmen within. The rich, delicate, and fragrant *Stephanotis floribunda*, with which the daughters of our highest aristocracy have garlanded their brows on the bridal morning, here climbs up the lattice-work of the verandahs, and contends for space with the scarlet Passion-flower, or the pink, waxy, and porcelain or gem-like flowers of the *Hoya carnosa* or the yellow-flowering *Allamanda cathartica*. The beautiful *Dalbergia scandens* frequently covers the walls; and the *Cryptastylia*, a purple-flowered creeper from Madagascar, occasionally overspread the largest trees. The *Lantana aurantiaca* in some places forms hedges; and elegantly-growing *Cactuses*, presenting at times long masses of bright yellow flowers, are cut off the tops and sides of the walls with a bill-hook or sickle. To all these, *Roses* from England have been recently added; and many of the sorts, especially the *Bourbon*, *Tea-scented*, and *Chinas*, thrive remarkably well, though the colour of the flowers is paler, and the fragrance fainter than when grown in England.—(*Ellis's Madagascar*.)

HENNA.—The Henna or Al Hiuna (*Lawsonia inermis*), is found in great abundance in Egypt, India, Persia, and Arabia. In Bengal it goes by the name of *Mindee*. It is much used here for garden hedges. Hindu females rub it on the palms of their hands, the tips of their fingers, and the soles of their feet, to give them a red dye. The same red dye has been observed upon the nails of Egyptian mummies. In Egypt sprigs of Henna are hawked about the streets for sale, with the cry of "O, odours of Paradise; O, flowers of the Henna!" Thomas Moore alludes to one of the uses of the Henna:—

Thus some bring leaves of Henna to imbue
The fingers' ends of a bright roseate hue,
So bright, that in the mirror's depth they seem
Like tips of coral branches in the stream.

—(*Richardson's Flowers and Flower Gardens*.)

BOTANIC GARDENS AT MAURITIUS.—So far as natural objects were concerned, no place in Mauritius was to me so attractive as the Royal Gardens at Pamplemousses. They cover about fifty acres of most excellent ground, and are well supplied with water. They appear to have been originally laid out on a truly magnificent scale. Long walks or avenues, with stone seats at intervals on both sides, are bordered with the most rare and valuable trees of both hemispheres, interspersed with an almost endless variety of shrubs and flowers. Many improvements in the arrangement of some portions of the ground were in progress; and the whole seemed to be kept in as good order as the number of labourers assigned to them were capable of maintaining. Many of the useful trees and plants of Europe may be found here; and the number of choice *Roses* recently introduced by Mr. Duncan add greatly to the charm and attractions of the place. But the gardens are especially rich in the productions of China, India, and the Asiatic Archipelago. Some of the most choice specimens are from Java and the adjacent islands; while there are others from the continent of Africa, as well as from Australia and South

America. There is one noble avenue of Palmistes, or Palms; it is at least four hundred yards in length, and for extent and beauty is probably unequalled in any other part of the globe. The trees are remarkably regular on both sides, presenting few openings or chasms. The tallest are forty or fifty feet high, and have probably been growing where they now stand for nearly a century. The young trees, more recently planted, nearer the centre of the walk, cover the lower parts of the trunks of the Palms, and add greatly to the graceful beauty of the vista, along which the lines of lofty waving plumes extend. Almost every variety of the Palm species, or form of growth, is to be found in these gardens, and I was much struck with the graceful slender forms of some beautiful *Areas*. There were also fine specimens of the *Latania rubra*, or fan-leaved Palm, and the singular leaved *Caryota urens*, the Rofia tree, the Traveller's Tree, and *Dombeya cuspidata*, the last three from Madagascar, as were also many of the rare and curious plants in different parts of the grounds. There were some large trees of *Adansonia*, and *Hibiscus* with flowers of almost every hue, growing luxuriantly, and requiring scarcely any other care than to be kept within bounds by the pruning knife. With regard to the vegetation generally, not only in the garden, but other parts of the island, I was often struck with the almost incredible strength and rapidity of growth in the shoots or branches of some kinds of trees, which frequently attained ten or twelve feet in length, besides producing smaller lateral branches, in a single season. Australian trees were not so numerous as might have been expected, and as I afterwards found them at the Cape; though there was a tolerably well-grown Norfolk Island Pine growing in a conspicuous situation. Cinnamon of almost every kind, Nutmegs and other spices, with the Camphor tree, Gum copal, India-rubber, Tanghinia, and other trees, were growing as freely as in their native forests. There were also some specimens of Teak from India, and Bread-fruit trees from the South Sea Islands. The genius of St. Pierre has rendered the whole of this neighbourhood a sort of classic region. The wreck of the "St. G6ran," in 1745, took place on the adjacent coast. The neighbouring bay is called the Bay of Tombs, because it is supposed that on its shores Paul and Virginia were buried. At Pamplermouses, in a small garden, are two brick and plaster pedestals supporting a couple of clay or coarse terra cotta urns, placed one on each side of a small oblong pond, and surrounded by light iron railings; these are called the tombs of Paul and Virginia. Each of these memorials standing by the side of the water, is shaded by a clump of Bamboos. When I went with Mr. Duncan to look at them, they appeared rather in a ruinous state, evidently modern, and entirely apocryphal. Nevertheless, sumpence is required of every visitor who enters the garden to see them.—(*Ellis's Madagascar.*)

TRADE CATALOGUES RECEIVED.

Autumn Catalogue of Dutch and Cape Flowering Bulbs by James Carter and Co., High Holborn, London.—Like all Messrs. Carter's Catalogues this is something more than a mere enumeration of names. Not only are there descriptions of the different varieties, but each class is prefaced by copious and thoroughly practical instructions for their cultivation.

A Catalogue of Flower Roots by Francis and Arthur Dickson and Sons, 106, Eastgate Street, Chester, is a tastefully got-up and well-selected Catalogue, and contains everything that is worthy of cultivation in the class to which it refers.

Descriptive Catalogue of Bulbs for 1859, by W. Cutbush and Son, the Nurseries, Highgate.—A very good enumeration of flowering-bulbs. The description of the Hyacinths is very useful.

TO CORRESPONDENTS.

WHITE BUTTERCUP (*Miss Maby*).—The plant you call the white Buttercup is *Parnassia palustris*. It is not a common plant, except in marshy acres in mountainous districts. We are much obliged by your offer.

GOLDEN HAMBURGH GRAPE (*Hon. G. H. B.*).—You need have no misgivings about the *Golden Hamburg Grape*. All that has been said in your of it is correct. The green colour arises from its being either badly or not sufficiently ripened; for when properly matured it assumes a due amber colour.

FUNGI AMONG FERNS (*C. H.*).—The little "mushrooms" on the soil in your Fernery will not injure the Ferns. Disturbing the surface daily with a rake will subdue them. Remove the dead fronds as they occur, cutting them off with a pair of scissors.

BLIGHTED CURRANTS (*Nap*).—There is something wrong at their roots. Probably they are planted too deep. Take them up carefully; replant

them in fresh ground, spreading the roots out regularly at about six inches below the surface. Cover the surface with mulch throughout this winter and every summer, and water them thoroughly twice a-week in dry weather.

GARDEN DESIGNS (*A Young Gardener*).—We cannot refer you to any other available work than the "Flower Gardening for the Many," published at our office. It contains six designs.

PEACH TREES (*H. S. Watson*).—You do not state how long the trees had been planted before you had them taken up and replanted; but whether that, or whatever else may have been the cause, it is quite certain that the roots failed to supply the sap required to sustain the growth of the young shoots. Probably the border beneath the south-east wall became hotter and drier than the rest of the garden where the trees succeeded; a good mulching over the surface might have prevented the mortality. Without seeing the trees and knowing full particulars no one can give a decided opinion as to the cause of failure.

ANGLE OF GREENHOUSE ROOF (*P. Barker*).—When plants are the sole object, we recommend Hartley's Patent Glass; but where Vines are as much an object, and there are plenty of means of air giving, clear glass. There is much confusion as to the angle of a house, because different people calculate from different sides of the quadrant. For instance: place a quadrant by either of its sides on a line representing the sloped roof of a house until the lead bob hangs in the middle of the arc at 45°; then, whatever the width of your house, your back wall must just be equally high above the front-wall plate. In your case, to give you an angle of 45°, your front wall being seven feet six inches, your back wall must just be thirteen feet higher than the front one. Calculating on our British plan an angle of 30° would give a very steep roof; and you would have to raise the back wall ever so many more feet to secure it. In measuring or setting out an angle we use the side of the quadrant as a base next to 90°. On the Continent the side next 5°, 10°, &c., is used; so that what is 30° with us would be 70° with them, and 30° with them would be 70° with us. Most likely it was on this calculation that the greenhouse was recommended to be of 30°. In general cases of vineries and greenhouses, where there is a similar amount of upright glass in front, from 30° or 70° on to 45°, according as the angle was taken, would be a very good slope for the roof. For instance: if your back wall were five feet higher than your front one, the sloping roof would be at an angle of about 70°, according to our mode, and 30° according to the continental mode; and the roof would be considerably steeper than a common garden frame. If there is nothing to prevent it we should recommend the back wall to be at least fifteen feet in height, and then there would be no danger of drip or water lodging in the laps. If one or two feet more, all the better: you will then be approaching twenty feet, which would give you an angle of 45°.

FLUE OF GREENHOUSE (*Waterford*).—It will make little or no difference to the draught if the flue does go off at a right angle from the fire, especially if the bottom of your fireplace is fully eighteen to twenty-four inches below the bottom of the flue. Your proposed flue sixteen inches by thirteen inches will be quite large and long enough for your house thirty feet long. We presume you mean brick on edge, and not on a flat bed. We prefer brick on edge for greenhouses, and brick on bed, or flat, for forcing-houses. The arrangements, so far as we can see, will answer perfectly.

VARIOUS (*M. F.*).—If *Ceanothus azureus* is out against a wall, as is likely, you will get no good by layering. This would be a good time to layer the shoots of this season's growth; but unless you can keep the plant through the winter from the frost, the young layers will most certainly die. The treatment of *Brugmansia arborea*, in all respects, is just the very same as the treatment of a good show *Pelargonium*—prune it close every year; when it breaks shake all the soil from the roots, and begin afresh. Flowering shoots of both *Pelargonium* and *Datura* will root and bloom in small pots.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

SEPTEMBER 22nd. BRIDGNORTH. *Sec.*, Richard Taylor, Bridgnorth.
OCTOBER 5th. WESTON-SUPER-MARE. *Sec.*, Mr. R. L. Jones, Weston-super-Mare. Entries close September 23rd.
OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. *Sec.*, Geo. Griffiths 7, St. Swithin Street, Worcester.
NOVEMBER 28th, 29th, and 30th, and DECEMBER 1st. BIRMINGHAM. *Sec.* Mr. J. Morgan, Bingley Hall, Birmingham.
N.B.—Secretaries will oblige us by sending early copies of their lists.

CRYSTAL PALACE POULTRY SHOW.

It is a grateful task to have to record continued success, when it is the result of straightforward and impartial efforts, backed by profitable experience; and it is rare to have to do with a Show entirely conducted by one person. This is, however, the case in the present instance. The conduct and success of this Show are the result of the energy and urbanity of Mr. Houghton, the Secretary. It must be as gratifying to him, as to amateurs at large, to see that entries and visitors increase at every recurring Exhibition.

On this occasion, the wing devoted to the Exhibition was occupied by a double tier of pens on each side. The glass-roof throws down an admirable light, and the large open space enabled the thousands who thronged it to circulate with perfect comfort. The Show is, however, so well known, that we may waive any farther description, and proceed at once to notice the salient parts of the different classes.

We recollect no year when *Spanish* appear to have been so carefully and so successfully bred as this. The chickens shown in the various classes were many of them perfect, and some of them better than we ever recollect to have seen at this season. We are also very glad to record that trimming, which caused so much discussion last year, has almost disappeared. The success of Miss Rake in taking all the first prizes deserves especial mention.

Taken as a whole, the coloured *Dorking* classes were not so good as we have seen; but this remark must not be considered to apply to the prize birds which well deserved their distinction. The *White Dorkings* were perfect, as good as we have ever seen. The prize *Single Cocks* were also excellent. We were very glad to see Sir J. Paxton among the first-prize-takers; and, wandering on the borders of this gentleman's house, we saw a *Dorking* cock and several younger ones, which, we think, if shown at the Winter Show, are very likely to repeat the exploit. The cause of some disappointment in these classes is the uneven matching of the pullets. There should be no glaring dissimilarity of colour; but it should be borne in mind, that no merit of feather can justify penning a large and a middling pullet together.

The *Buff Cochins* class was one of the best we have ever seen. We are always pleased when these birds are in the ascendant. We do not wish the days to return when a fowl would buy a horse, but we think really valuable birds from their real utility should be encouraged. Mr. Stretch's pen deserved especial mention, as did the second-prize birds shown by Mrs. Fookes. The cock in the last pen was beautiful. The *Brown* and *Partridge* did not merit the encomium of last year, and were deficient as compared with their *Buff* brethren. Nor did the *White* shine as we have seen them. In selecting the *Brown* and *Partridge*, it is most important to choose those that are really brown; but many are shown with semi-yellow breasts. In *White*, the colour of the legs is important; and any approach to green, instead of the bright yellow, is a defect. We would not be thought to be hypercritical; but, in many instances, birds are sent because they are the largest and oldest, while far better in points are left behind.

Brahma Pootras were excellent. We do not mention the names of prize-takers, because all were published last week. We speak in terms of commendation of the class; but as we think our report should also convey instruction, we have an observation akin to that we made on *Brown* and *Partridge Cochins*. It is not enough to choose well-marked and pencilled backs, but the breasts should also be pencilled all over. Some of the commended birds, otherwise beautiful, had very light breasts.

We can speak well of all the *Game*, save the *Black* and *Brassy-winged*; they were poor. The *Black-breasted Reds* were excellent; and one pullet in one of Mrs. Sewell's pens was perfection. It would be unfair not to notice Mr. Vernon's *Duckwings*, and Messrs. Swift and Moss's *Single Cocks*.

The *Golden-pencilled Hamburgs* made an excellent display; and here, again, one pullet in the first-prize pen was PERFECT. The *Silver-pencilled* afforded the usual result. Mr. Archer carrying off first; but he was hard run by his competitors. It is not usual, but we did not think the *Silver* as good as the *Golden*. The *Golden* and the *Silver-spangled* were both good classes.

The *Black Polands* were very good. We recommend the exhibitors in *Golden-spangled* classes to be more particular in their selection. In all the pens sent to the Crystal Palace, there was only one that had not a hump-backed bird in it. The *Silvers* were very good indeed, and many chickens shown will be prize-takers at winter Shows. The topknots of the pullets were beautiful, both in shape and colour.

Malays are always well represented here, and the present was no exception. The prize birds were admirable; and, had there been a third prize, it could have been worthily bestowed.

In the *Various Classes*, Mr. Hind's *Black Hamburgs*, and Mr. Coles's *Andalusians*, were of great merit.

The *Gold-laced Bantams* were better than the *Silvers*, as usual, but we thought there was an improvement in the latter. The *White* and *Black* were good; but in both, the long and graceful sickle feathers were wanting. Many can recollect the *Black* ones showed by the Rev. P. Gurdon, which, in addition to every point now insisted upon, had sweeping tails. The *Sebright Bantams* stand alone; and it is a mistake to take them for the *beau ideal* of every variety. The *Game Bantams* were beautiful. From the time of year, the *Duckwinged* showed to least advantage; they have not their perfect plumage, and, in many parts of it, look like a mixture of cobwebs and blotting paper.

We may speak in terms of unmixed commendation of Mr. Manfield's first-prize pen of *White Geese*. They were perfect in symmetry and condition. They weighed 42 lbs. Mrs. Seamons' was nothing behind in condition, but lacked 4 lbs. in weight compared to the former. The *Greys*, now-a-days, are heavier than the *White*, and they always afford a triumph to Mr. Fowler: his birds weighed 48 lbs. Mrs. Seamons' followed, hers weighed 43 lbs. Mr. Rugby's were very good.

Mr. Fowler always wins in *Aylesbury Ducks*; small wonder—three ducklings weighed 22 lbs. Mrs. Seamons' was only half a pound behind. Every other point was perfect in both. An idea may be formed of the closeness of the competition, when we record that the highly-commended pen weighed 20½ lbs. The *Rouen Ducks* were the best class of the breed we have ever seen. Mr. Fowler's first-prize pen was half a pound lighter than the second, but the condition, and the exceeding beauty of their plumage, carried it in their favour. Mr. Keable's highly-commended pen weighed 17 lbs. Mr. Pryor's first-prize *Black Ducks* were the best we have ever seen.

All the *Turkeys* were excellent, but Norfolk or Cambridgeshire always takes first honours. Berkshire ran them hard.

The Show was eminently successful throughout. One remark was made by everyone: it was that the awards were unusually scattered about. There may be two reasons for it. First, that exhibitors understand the pursuit better; next, that by the great sale of eggs caused by prizetaking the sellers have to compete against their own stock. Chicken Shows will always bring forward new winners, because a successful early breed will mostly ensure success; while in the winter all chickens are, to use an old breeder's phraseology, "of the same age." Thus some of the commended here may hereafter turn the tables on their victors.

The Judges were Messrs. Hewitt and Bailly.

MORTALITY AMONG CHICKENS.

THE same day that I forwarded to you a dead chicken, I read your notice upon "Crop-bound Dorkings." On examining my chickens I found the crops full, but soft, as there described, and the skin blue. I gave them ipecacuanha wine till sickness was induced, when a whitish slimy liquid was thrown up, but nothing substantial. To this I added a tea-spoonful of castor oil, and after this had taken effect the patients were much relieved. Two of them appear to-day to be in a fair way towards recovery, though naturally weak after such vigorous measures; but a third, which was already far gone when the remedy was begun, died in the night.

Those chickens are only ten days old, but this disease attacks all growing poultry; and, I would add, that I scarcely think it arises from over-feeding, inasmuch as nothing is thrown up but liquid. I do not, however, attempt to give an opinion as to whence it arises.

I have recovered a young Turkey also, under this treatment, which ought to be begun upon the first appearance of moping or gaping, and hanging of the head.

The food given to my chickens consists of Indian meal, slaked, and mixed with soaked bread and scraps of meat.—M. H.

[The chicken was putrid when it reached us, and there were no appearances to indicate the nature of the disease. We believe, from what you state, that the mortality among your chickens is caused by giving large quantities of food at a time, and at long intervals. Change the food to oatmeal moistened with milk, with a little egg boiled hard, and chopped fine. Give it in a crumbly state, a little at a time, and very often,—say every two hours.]

HALIFAX AND CALDER VALE POULTRY SHOW.

THIS was held at Halifax August 27th. The following prizes were awarded:—

The Secretary's SILVER CUP, to the Exhibitor who takes the largest number of Pigeon Prizes.—W. Smith, Beech Hill, Halifax.

SPANISH.—First, J. Dixon, Bradford. Second, T. Robinson, the Gill, Ulverstone. Chickens.—First, S. Robson, Pocklington. Second, T. Robinson, the Gill, Ulverstone. Commended, S. H. Hyde, Ashton-under-Lyne.

DORKING.—First, W. Dawson, Hopton, Miffield. Second, H. W. B. Bervick, Helmsley. Chickens.—First, Messrs. Kirby and Holby, Driffield. Second, J. Siddall, Halifax. Commended, H. W. B. Berwick, Helmsley; B. Wilkinson, Shelf, Halifax; L. J. Crossley, Manor Heath, Halifax; J. Price, Londonderry, Bedale; J. Siddall, Halifax; T. Smith, Carlton Villas, Halifax.

COCHIN-CHINA.—First, Miss V. W. Musgrove, Anghton, Liverpool. Second, T. Stretch, Marsh Lane, Bootle, Liverpool. *Chickens.*—First, T. Stretch, Marsh Lane, Bootle, Liverpool. Second, W. Dawson, Hopton, Mirkfield.

GAME (White and Piles).—First, H. Adams, Beverley. Second, J. Eastwood, Mill House. *Chickens.*—First, H. Adams, Beverley. Second, Messrs. W. and N. Grimshaw, Bank House, Burnley.

GAME (Duckwing, Grey, and Blue).—First, J. Dixon, Bradford. Second, Messrs. Bird and Beldon, Eccleshill Moor, Bradford. *Chickens.*—First, J. Uttley, Ovenden. Second, T. Dodds, Ovenden.

GAME (any other variety).—First, Messrs. W. and N. Grimshaw, Burnley. Second, A. Hodgson, Illingworth, Halifax. Commended, J. Metcalf, Belmont, Bolton; F. Hardy, Bowling, Old Lane, Bradford; Messrs. Bird and Beldon, Eccleshill Moor, Bradford; H. Adams, Beverley; T. Robinson, the Gill, Ulverstone; T. Dodds, Ovenden. *Chickens.*—First, Messrs. W. and N. Grimshaw, Burnley. Second, R. Hemmingway, Shelf.

SINGLE GAME COCK.—First, Messrs. W. and N. Grimshaw, Pendle Forest, Burnley. Second, F. Hardy, Bowling Old Lane, Bradford.

HAMBURGH (Golden-pencilled).—First, F. Wragg, Steel Bank, Sheffield. Second, W. H. Dyson, 9, High Street, Horton. *Chickens.*—First, T. Bottomley, Shelf. Second, F. Wragg, Steel Bank, Sheffield.

HAMBURGH (Silver-pencilled).—First, W. Maude, Victoria Place, Bingley. Second, J. Dixon, Bradford. *Chickens.*—First, W. Maude, Victoria Place, Bingley. Second, J. Dixon, Bradford.

HAMBURGH (Golden-spangled).—First, J. Dixon, Bradford. Second, D. Ashworth, 6, Thomas Street, Halifax. *Chickens.*—First, J. Dixon, Bradford. Second, D. Leeming, Blackwood House, Halifax.

HAMBURGH (Silver-spangled).—First, S. Robson, Pocklington. Second, Messrs. Bird and Fielding, Eccleshill Moor, Bradford. *Chickens.*—First, S. Lightowler, Northowram. Second, J. Eastwood, Mill House.

BANTAMS.—First, I. Thornton, High Street, Heckmondwike. Second, W. H. Richardson, 17, Humber Street, Hull. *Chickens.*—First, I. Thornton, Heckmondwike. Second, W. B. Tegetmeier, Muswell Hill, London.

ANY OTHER DISTINCT BREED.—First, J. Dixon, Bradford. Second, F. Wragg, Steel Bank, Sheffield. *Chickens.*—First, J. Dixon, Bradford. Second, J. Birkby, Lightcliffe.

DUCKS (Aylesbury).—First and Second, Mrs. Seamons, Hartwell, Aylesbury.

DUCKS (Rouen).—First, T. Robinson, the Gill, Ulverstone. Second, D. Leeming, Blackwood House, Halifax.

GESE.—First, J. Priece, Londonderry, Bedale. Second, J. Dixon, Bradford.

TURKEYS.—First, J. Dixon, Bradford. Second, A. G. Waithman, Halifax.

PIGEONS.—*Cock Pouter or Cropper.*—First and Second, W. Smith, Beech Hill, Halifax. *Hen Pouter or Cropper.*—First, W. Smith, Beech Hill, Halifax. Second, W. H. Richardson, Humber Street, Hull. *Cock Carrier.*—First, W. Smith, Beech Hill, Halifax. Second, J. Bairstow, Heath Cottage. *Hen Carrier.*—First, G. Morgan, 15, Elton Street, Broughton, Manchester. Second, J. Bairstow, Heath Cottage. *Almond Tumblers.*—First and Second, G. Morgan, 15, Elton Street, Broughton, Manchester. *Balds, Beards, and Mottled Tumblers.*—First, G. Morgan, 15, Elton Street, Broughton, Manchester. Second, W. Smith, Beech Hill.

Owls.—First and Second, G. Morgan, 15, Elton Street, Broughton Manchester. *Turbits.*—First, W. Smith, Beech Hill, Halifax. Second, W. B. Tegetmeier, Muswell Hill, London. *Jacobins.*—First, W. Smith, Beech Hill. Second, F. C. Esquilant, 346, Oxford Street, London. *Fantails.*—First, S. Robson, Pocklington. Second, W. Smith, Beech Hill. *Barbs.*—First and Second, W. Smith, Beech Hill. *Dragoons.*—First, W. Smith, Beech Hill. Second, J. Deakin, 114, Green Lane, Sheffield. *Archangels.*—First, F. Mewburn, jun., Darlington. Second, H. Child, jun., Birmingham. *Runts.*—No entries. *Nuns.*—First, H. Child, jun., Birmingham. Second, J. W. Edge, Aston New Town, Birmingham. *Trumpeters.*—First, F. Mewburn, jun., Darlington. Second, J. Morrell, 38, Neasham Square, Sunderland. *Any other variety.*—First, W. Smith, Beech Hill. Second, W. B. Tegetmeier, London.

POULTRY EXHIBITION AT THE CRYSTAL PALACE.

(From a Correspondent.)

ALTHOUGH, Mr. Editor, I have but little doubt you will obtain a full report of the Exhibition generally that has just been held at the Crystal Palace, I cannot forbear offering a few remarks of my own on features connected with this Show, that, once pointed out, may prove worthy of the consideration of such Committees as purpose to hold similar meetings in other localities, besides affording hints to exhibitors calculated to increase their future success.

That the Crystal Palace possesses advantages for holding such an exhibition that cannot be enjoyed by the generality of Poultry Shows elsewhere is unreservedly admitted. Unlimited space, freedom from all draughts of air or sudden inclemency of weather, and strict equality of position for every competing pen, are peculiarly its own; whilst the never-failing determination of the Secretary, Mr. Houghton, to have everything carried out efficiently, is notorious to all exhibitors. It is indeed quite a treat to find every possible exigence thus carefully provided for. The improved management of the railway officials, whose business it is to superintend the transmission of the poultry from London Bridge Station to the Palace, was remarkable; on previous occasions I saw, with regret, that the hampers containing so many valuable specimens were heedlessly knocked about, as though containing nought save the roughest merchandise; now, however, from the remonstrances expressed, every necessary care and attention were paid to this important duty.

I will now briefly allude to some of the particular classes. The *Spanish* throughout were excellent; and here it is most satisfactory to record the almost total absence of "trimming," which, but till lately, was by far too general. After a very careful scrutiny I could not detect more than one instance where this unjust practice had been resorted to. This proves that the folly of attempting such imposture is now pretty certain to ensure the discomfiture of those who practise it, as undoubtedly it should do.

In *Dorking Chickens* it is but too evident that excessive and unnatural stimulants, to produce the largest birds, have, in many cases, entailed malformation. To every careful observer at the Crystal Palace it would be apparent that numbers of chickens of the greatest frame were become wry-legged, and so irrecoverably deformed, that easy locomotion was to them impossible. The male birds are necessarily the greatest sufferers from this ill-judged practice, productive of vexation only to the breeder, whether considered as applicable to birds for exhibition purposes or brood stock. This evil is infinitely increased from the foolish habit of not permitting early chickens sufficient exercise, acting under the erroneous impression that, being ushered into being before the inclemencies of winter are bygone, many exhibitors shut up and coddle in artificially-heated rooms their January and February chickens. The strongest, most probably, survive the infliction, but, as the sequel proves, without any useful return for the labour that has been bestowed upon them. If such chickens are permitted unrestricted liberty at every moment when the weather is permissible, although no doubt many will die, simply from being hatched at so unnatural a season, the majority of the survivors will be upright and strong. The *Dorking* chickens, I confess, disappointed my anticipations.

In the *Chicken classes for Cochins*, perhaps so many first-rate specimens, whether Buff or Partridge-coloured, never before met in competition; the condition of these pens almost universally was extraordinarily good. Cochins are, however, the least susceptible of injury from confinement, whether as chickens or adults, of any of our larger breeds of domestic poultry; and in proof of their hardihood, not a single malformed one was to be met with throughout the Exhibition.

These classes, with the *Black-breasted Game*, were worth the expenses of a visit to the Crystal Palace in themselves.

The *Game Chickens* were extraordinarily good; but the old mistake of penning strangers together for exhibition was still in vogue among the competitors, and several very promising specimens fell victims to this reprehensible practice, being actually scalped long before they reached the Palace. When birds of the highest blood are thus treated, the result is inevitable, nor can any other party than the exhibitor himself be called to blame, as no amount of supervision in Committees can prevent it.

The classes for *Pencilled Hamburgs* were perfect, but the *Spangled* varieties showed to much less advantage.

In *Polands*, no doubt the *White-crested* were the most praiseworthy. The *Silvers* were also very good; but, strange to say, there was scarcely a single pen of *Golden* that did not hold one wry-backed bird, and, in some instances, several. Exhibitors who wish success must avoid such selections, as they, however perfect in plumage, infallibly lead to immediate disqualification.

The *Malays* could not have been excelled.

The *Sebright Bantams* were a sad falling off from past years. Surely the Bantam breeders must rally a little, if they hope to maintain the reputation of this beautiful breed. The *Game Bantams* were both numerous and first-rate. No class has more improved of late years.

The *Geese* and *Aylesbury Ducks* were unrivalled, and shown most creditably throughout. The *Labrador* ducklings were also marvellously good.

Of the *Pigeons* and *Rabbits* it is impossible to speak too highly. The competition in this division of the Exhibition was very close, and I am told, Messrs. Bellamy and Cottle expressed their opinion that it was the best Show of Pigeons they ever judged.

Messrs. Baily and Hewitt, who officiated for the poultry, had also plenty of work before them: the greater difficulties of awarding premiums in an exhibition containing chickens exclusively, is well known to all conversant with poultry matters, and to be carried out efficiently requires much practical experience. The great care and attention hitherto manifested towards the poultry at the Crystal Palace Meetings were fully maintained on the late occasion.

Every basket that had contained poultry was carefully kept

under cover, so that perfectly dry hampers would be ready to hand at the close of the Show. This important item to the well-doing of exhibition poultry should never be lost sight of, nor can arrangements be held complete where this feature is neglected.

I thus draw particular attention to the necessity of dry packages; as at many local agricultural meetings its importance seems unheeded, and numbers of excellent birds are inevitably ruined by colds taken from exposure for hours to damp during their return homewards.

MACCLESFIELD POULTRY EXHIBITION.

August 25th, 26th, and 27th.

SPANISH (Black).—First, S. H. Hyde, Moss Cottage, Ashton-under-Lyne. Second, J. Simpson, Chester Road, Macclesfield. Highly Commended, C. Atkins, Thames Bank, Pimlico.

DORKING.—First, S. H. Hyde, Moss Cottage, Ashton-under-Lyne. Second, J. Hall, the Fence, Macclesfield. Highly Commended, T. R. Dainty, North Rode.

COCHIN-CHINA (White).—First, T. Adshead, Macclesfield. Second, G. Hatton, Park View, Macclesfield.

COCHIN-CHINA (any other variety).—First, H. Tomlinson, Birmingham (Buff). Second, H. N. Harrop, Audenshaw. Highly Commended, S. H. Hyde, Moss Cottage, Ashton-under-Lyne.

GAME (Black-breasted and other Reds).—First, J. Clayton, Worksop, Notts. Second, T. R. Dainty, North Rode (Black-breasted Reds). Highly Commended, W. A. Wright, Macclesfield (Black-breasted Red).

GAME (any other variety).—First, W. Dunning, Newport, Salop (Black). Second, J. Clayton, Worksop, Notts. Highly Commended, S. H. Hyde, Ashton-under-Lyne.

HAMBURG (Silver-pencilled).—First, M. Dawson, Ridge Hill. Second, N. Marlor, Denton.

HAMBURG (Gold-pencilled).—First, J. Bradley, Alderley. Second, W. Pierce, Hartford, Northwich. Highly Commended, S. H. Hyde, Ashton-under-Lyne.

HAMBURG (Silver-spangled).—First, J. Leech, Newcastle-under-Lyne. Second, N. Marlor, Denton. Highly Commended, W. Pierce, Hartford.

HAMBURG (Gold-spangled).—First, S. H. Hyde, Ashton-under-Lyne. Second, J. Hall, the Fence, Macclesfield.

HAMBURG (Black).—First, J. Ashcroft, Ashton-under-Lyne. Second, W. Whiston, Langley.

POLANDS.—Prize, J. Ashcroft, Ashton-under-Lyne.

ANY OTHER DISTINCT BREED.—Prize, R. Suker, Comberbach (Chittagong Game).

BANTAMS (Game).—Prize, S. H. Hyde, Ashton-under-Lyne.

BANTAMS (any other variety).—First, W. Whiston, Langley. Second, T. R. Dainty, North Rode (Black). Highly Commended, N. Marlor, Denton.

SINGLE GAME COCK (of any breed or colour).—First, W. A. Wright, Macclesfield. Second, H. Orrit, Wildboarclough. Highly Commended, T. R. Dainty, North Rode.

Ducks (Aylesbury).—First, J. Hall, the Fence, Macclesfield. Second, S. H. Hyde, Ashton-under-Lyne. Highly Commended, G. Hatton, Park View, Macclesfield.

Ducks (any other variety).—First, S. H. Hyde, Ashton-under-Lyne. Second, J. Hall, the Fence, Macclesfield.

PIGEONS.—Pouters.—First, P. Eden, Salford. Second, H. Child, jun., Birmingham. **Carriers.**—First and Second, P. Eden, Salford. Highly Commended, G. Goore, Algburth Vale, near Liverpool. **Almond Tumblers.**—First, H. Child, jun., Birmingham. Second, H. Jackson, Macclesfield.

Tumblers (any other variety).—First, J. W. Edge, Birmingham. Second, H. Jackson, Macclesfield. Highly Commended, H. Child, jun., Birmingham.

Jacobins.—First, J. W. Edge, Birmingham. Second, P. Eden, Salford. Highly Commended, H. Tomlinson, Birmingham. **Nuns.**—First, H. Child, jun., Birmingham. Second, J. E. Mapplebeck, Birmingham.

Owls.—First, H. Jackson, Macclesfield. Second, P. Eden, Salford. Highly Commended, N. Potts, Macclesfield. **Fantails.**—First, H. Child, jun., Birmingham. Second, H. Jackson, Macclesfield. Highly Commended, S. Adshead, jun., Woodbank, Macclesfield.

Balds.—First, J. W. Edge, Birmingham. Second, G. Goore, Algburth Vale, Liverpool. Highly Commended, H. Jackson, Macclesfield.

Runts.—First, H. Child, jun., Birmingham. Second, P. Eden, Salford. **Any other variety.**—First, P. Eden, Salford (Hyalintbs). Second, J. W. Edge, Birmingham. Highly Commended, H. Child, jun., Birmingham.

RABBITS.—Length of Ears.—First, T. E. Russell, Aston, Birmingham (Fawn Buck). Second, J. Keates, Leek (Tortoiseshell Buck). **For colour and all properties.**—First, T. E. Russell, Aston, Birmingham (Yellow and White). Second, B. Gale, Sheffield. Highly Commended, J. Keates, Russell Street, Leek (Blue Tortoiseshell Doe). **For Weight.**—First, H. Mellor, Sutton. Second, T. E. Russell, Aston, Birmingham (Fawn Doe).

CANARIES.—Yellow (Plain Head).—First, J. Duckworth, Macclesfield. Second, W. Swindells, Hursfield. **Buff (Plain Head).**—First and Second, W. Warren, Macclesfield. **Yellow Copy.**—First, J. Benson, Macclesfield.

Second, J. Johnson, Ashton. **Buff Copy.**—First, W. Swindells, Hursfield. Second, J. Johnson, Ashton. **Junks.**—First, P. Duckworth, Macclesfield.

Second, C. Adderley, Macclesfield. **Greys.**—First, J. Johnson, Ashton. Second, P. Duckworth, Macclesfield.

JUDGES.—Samuel Harrop, Curator to the Museum, Manchester, for Poultry and Rabbits. Edward Eaton, Prestbury, near Macclesfield, for Pigeons. George Walker, Salford, for Canaries.

LIGURIAN BEES.

I HAVE been much interested by reading the "DEVONSHIRE BEE-KEEPER'S" articles in the two last numbers of THE COTTAGE GARDENER, relating his mishaps and successes with the "Ligurian bees."

We have a Mr. Beaton who performs experiments for flower growers, &c., in the "Experimental," and which are duly recorded in THE COTTAGE GARDENER for the instruction of its numerous readers; and I hope the "DEVONSHIRE BEE-KEEPER" will still, in the same way, continue to record his apiarian experiences, and particularly so with regard to her Italian majesty of the "yellow Ligurian race." But I could like still more doing. I should like some one to act as experimentalist, and report progress from time to time in your periodical. Then comes the question, how is this to be done? Well, I propose that a number of your apiarian readers subscribe a little—say 5s. or 10s. each, so as to raise sufficient for purchasing two or three stocks of the bees in question; then to be entrusted to some competent person for his observations thereon, and comparisons with our present race of bees, as to hardiness, prolificacy, the gathering of honey, &c. I mention hardiness in particular, as I happen to reside pretty near to the clouds—say 900 feet above the sea level, among the Lancashire hills, and where there is much rain and raw weather; consequently a bad district for bees of the present race. If the Ligurian are more hardy, it would prove a valuable acquisition here.

Another point would be for the experimenter to let subscribers have swarms of the Ligurian bees in preference to strangers, at a fair price. The order to be ballotted for, or some other plan devised for distributing the swarms.

If a good apiarian would oblige your bee-keeping readers by carrying out something like the above plan, I am sure his services would be much appreciated. I propose the subscribing for the first stocks of the bees, because it would not be fair to the experimenter to have all the risk and trouble at his own cost.

If you, Mr. Editor, would propound some such scheme to your readers, I think it would be taken up, and would also be the means of introducing the Ligurian bee.—T. A.

[The person we recommend, if he will undertake the joint-stock experiment, is the "DEVONSHIRE BEE-KEEPER" himself. He is a thoroughly practical and trustworthy bee-keeper, a friend of Mr. Taylor, and other first-rate apiarian authorities. He will see this notice, and we will publish his reply. Devonshire would be a good preparatory ground for the introduction of exotic bees; and the "DEVONSHIRE BEE-KEEPER" lives close to a railway station.]

OUR LETTER BOX.

PIGEON-HOUSE ON A POLE (A. J. Crick).—A pigeon-house on a pole, to accommodate ten pairs, should contain from twenty-four to thirty holes or nests. The form may be square, octagon, or round, and of sufficient diameter to allow the nests to be of adequate size. The alighting-boards outside the holes may be in separate detached pieces, one at each entrance; or they may run all round the house; but in this case it will be necessary to divide them by upright partitions at every second nest, so that each pair of Pigeons may occupy two nests. We think Mr. Rogers, City Road, London, makes very pretty pigeon-houses for poles.—B. P. B.

GAPES (G. S.).—There is no specific for this disease. Fowls robust and with a good run rarely have it. We should like to hear the result of forcing a little sweet oil down the windpipe by means of a small syringe.

FUMIGATING BEES (A Bee, Darlington).—Your question as to the expediency of using chloroform in the case of bees has often been answered in the negative in our pages, as repeated instances of bad effects have been recorded. If you object to fumigation either by the agency of the *Lycopodium giganteum* (common Puff-ball) or the *Racodium cellare*, there is an alternative which finds greater favour with many experienced apiarians—viz., the driving of bees. As you say you possess Taylor's "Bee-keeper's Manual," you will find the details of the process in the fifth edition of that work. As regards the size of hives, situation, numbers, and other circumstances must enter into the question. It is never advisable to use a larger hive than is likely to be filled. As to the removal or destruction of queens at stated times, our advice is to leave the matter, in a general way, to the bees themselves. No doubt some are more fertile or longer-lived than others, and a case might arise where a removal might be attempted with advantage; but amateurs are not often competent to the task. Of what are called, or mis-called, bee-traps we have no direct experience. We have duly considered the Society you mention, and come to the conclusion that it is best to leave it unnoticed.

LONDON MARKETS.—SEPTEMBER 5.

POULTRY.

The market has a downward tendency. The supply of poultry is increased: as, the harvest being finished, people have time to send, and London being empty, there are no buyers. The supply of Grouse is moderate.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls.....	4 0	to 4 6	Turkeys	0 0	to 0 0
Smaller ditto	3 0	„ 3 6	Grouse	1 6	„ 3 0
Chickens	1 9	„ 2 0	Pigeons	0 7	„ 0 8
Geese	5 6	„ 6 0	Rabbits	1 4	„ 1 5
Ducks	2 6	„ 3 0	Wild ditto	0 8	„ 0 9

WEEKLY CALENDAR.

Day of M th	Day of Week.	SEPTEMBER 13—19, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock after Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
13	Tu	<i>Drakea elastica.</i>	30.042—30.000	84—45	E.	—	33 af 5	20 af 6	21 a 6	16	4 2	256
14	W	<i>Drimia altissima.</i>	30.145—30.110	78—46	N.W.	—	34 5	17 6	33 6	17	4 23	257
15	Th	<i>Drimia elata.</i>	30.163—30.074	77—45	E.	—	36 5	15 6	48 6	18	4 44	258
16	F	<i>Echites hispinosa.</i>	30.074—29.883	80—54	E.	—	37 5	13 6	9 7	19	5 5	259
17	S	<i>Echium strigosum.</i>	29.771—29.616	78—49	S.E.	.08	39 5	10 6	35 7	20	5 26	260
18	SUN	13 SUNDAY AFTER TRINITY.	30.077—29.914	70—33	S.W.	—	40 5	8 6	13 8	21	5 48	261
19	M	<i>Erica carinata.</i>	30.110—29.989	64—50	N.E.	.27	42 5	6 6	8 9	22	6 9	262

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 67.3° and 47.1°, respectively. The greatest heat, 84°, occurred on the 17th, in 1843; and the lowest cold, 29°, on the 17th, in 1840. During the period 124 days were fine, and on 100 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

FINISH housing the greenhouse plants, and give them as much air as possible; for if air is too sparingly admitted at this season, when many of the plants have not finished their growth, it will cause them to produce weak and tender shoots, which will be very liable to damp off at a more advanced period when the inclemency of the external air will cause them to be kept close. Water to be liberally supplied when they are first taken into the house, as the dry boards on which they may stand, or the elevated situation and free circulation of air will occasion a more frequent want of that element than when they stood on the moist earth. However, by no means go to the extreme, but give it only when evidently necessary.

AZALEAS.—Plants that have set their blooms to be removed to the greenhouse; but the late kinds to remain in heat until their growth is matured and the bloom set. If a few are required to bloom at Christmas, or a little after, they should be kept in heat until the bloom-buds have swelled to a good size, when they will require but very little forcing to start them into bloom.

BULBS.—Procure and pot them as soon as possible, as much of the success of early forcing depends upon early potting.

CAMELLIAS.—Treat them as advised for Azaleas.

HEATHS.—Look sharply after mildew, as plants that have been growing freely in a shady situation in the open air, and are in a rather succulent state when taken indoors, are liable to be attacked by this pest, which should be removed on its first appearance by an application of sulphur.

STOVE AND ORCHID-HOUSE.

Commence a gradual reduction of the temperature in correspondence with the decline of external heat; by such means the plants will be better prepared to withstand the gloom and other vicissitudes of the winter season.

BEGONIAS.—Encourage the different kinds for winter flowering by shifting them, if necessary, into larger pots. They succeed best in a compost of half leaf mould and half loam. They grow luxuriantly in a soil composed entirely of decayed vegetable matter; but in that they are liable to rot off at the base of the stem.

FORCING-HOUSES.

FIGS.—Trees in tubs or pots still bearing to be assisted with a little liquid manure when dry. Withhold water gradually from the borders, to induce an early, but not a too premature, ripeness of the wood and an early rest.

PEACHES.—The flues of the early house may now be cleaned, and, if not yet done, the lights washed and painted, if necessary.

PINES.—If there are some of the spring fruiting plants still remaining in the fruiting-house, they should either be placed at one end of the pit, or removed to a small house by themselves; the house should then be prepared for the best of the succession plants for the second crop

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next summer. Plants showing fruit after this time, although they cannot be expected to produce as fine fruit as if earlier in the season, will, nevertheless, be found very useful, and should have every attention given to them while the season continues so favourable. To be placed in the warmest corner of the house, and to be supplied when dry with a little liquid manure. Continue to grow on the young stock while the weather continues so favourable as it has done of late; for fine sunny days and moist growing nights are all that we can desire. A good portion of solar heat to be secured by shutting up early. On cold nights gentle fires will be necessary to keep up the temperature to 70° towards morning.

VINES.—The Vines that are to be forced early, if the wood is well ripened and all the leaves nearly off, may be pruned without much fear of bleeding, keeping the house as cool as possible; but if, from appearances, the sap is not considered to be sufficiently at rest, the pruning should be postponed. Continue to forward the Grapes not yet ripe by giving a little fire heat during the day. Air to be given to the house as soon as the sun shines upon it, as the vapour that ascends, if not allowed to pass off by ventilation, will cause the Grapes to become mouldy and worthless.

WILLIAM KEANE.

CRYSTAL PALACE FLOWER SHOW.

SEPTEMBER 7TH.

As compared with the first autumnal exhibition, which the Crystal Palace Company were the first to introduce round London, and by which they pushed the glories of Chiswick to one side to make way for the new order of things—I say, as compared with that first and bold attempt, this was a most magnificent Show. The dummies of Chiswick would make the world believe that nothing could be had in bloom worth looking at after the first and second week in July; but now a September show is much better than the old July exhibitions: and the same exhibitors who, to my personal knowledge, let down their plants at the end of June, and could not show their faces in July, or rather did not think the encouragement at Chiswick worth the trouble, can now, under better and more liberal patronage, come out first-rate in September. I need not go farther than my next door neighbours, Mr. Green and Mr. Carson, two of the best gardeners in England, and two of the most successful competitors of the present age, to prove my assertion.

The practical lesson to be learned from this state of things is to see, and take special care, that the old drags of the Chiswick coach are not to be applied to the first-class carriages at Kensington Gore; for if they are, depend upon it the debentures will not pay their cost, much less their interest. Yes, the progress of our art is now proved to be as easily advanced in the sight of London as it has been proved to be, years since, in the great establishments in the provinces. Those who recollect the Balsams of the first September Show at the Crystal Palace, and have seen or heard of those on this occasion, will need no other index to the credit of the Crystal

Palace for breaking the ice. Every other department of the art has not gone on in the same ratio, it is true, but that is because they happened to be so much in advance at the time.

What is called the cottagers' and amateurs' classes, were now a-head of what the first-prize gardeners could show on the first occasion; and the fruit was never seen, at this season of the year, in such high state of perfection, in such quantities, or in such number of kinds, and to make sure of a good harvest-home dessert.

I began my notes on the fruit, which stood on double stages, across in front of the Handel orchestra, and on two double tables extending across to the opposite, or each side orchestra.

The chief novelty in the fruit way was the competition for Mr. Veitch's prize for the best *Golden Hamburgh Grape*. There were but two competitors, and they were neck and neck. One had his berries a little riper, and carried the day; but the ripest berry was only three-parts ripe—not at all fit for table where Lord Palmerston dined the week before the Show. Nevertheless, the *Golden Hamburgh* is unquestionably now the very best plain white Grape in cultivation. THE COTTAGE GARDENER was the first authority to assert the fact—a fact which I entirely overlooked till reminded of it that very day by Mr. Busby, the lucky raiser of it; and he insists on sending me a young Vine of it, to inarch on my experimental black Grape out of doors; while our mutual friend and fellow labourer, who raised the *Bowood Muscat*, "will not believe one word" about my growing and ripening such Grapes out of doors. He says I have "got some trick in it," which will put the British Pomological Society to the expense of sending down a commission to get out the trick, and teach it to all who happen to be in the same degree of latitude and farther south.

Collections of six kinds of fruit in eight dishes, and collections of eight kinds in ten dishes, stood first on the stages. The first prize for the eight dishes was won by Mr. Dawson, gardener to Earl Cowper, Panshanger, Herts. His dishes would stand thus:—Two Pines, two Grapes (Black and White), one Peach and Nectarine, one Fig and Pear. The second prize was to Mr. Bailey, gardener to J. J. Drake, Esq., Amersham; and there was but a very slight difference in the merits of the collections. These would, or should, be placed thus:—One Pine and Melon, two Grapes, Peach and Nectarine, Figs and Pears. The third prize went to Mr. Eckford, gardener to Lord Radnor, Highworth, Wilts, who had a fine Cayenne Pine, very fine Peaches and Nectarines. In this class stood collections from Mr. Holder, Eaton College; Mr. Sage, Gopsall Hall, Atherstone; Mr. Rodgers, gardener to R. Gurdon, Esq., M.P., Litton Hall, Norfolk; Mr. Peed, the well-known exhibitor from J. Treadwell, Esq., Norwood; Mr. Ingram, gardener to J. J. Blandy, Esq.; Mr. Rabbitt, gardener to Lord St. John, Melchbourne, Beds: the kinds being Pines, Melons, Peaches and Nectarines, Figs, Pears, and Plums.

In the class of eight kinds of fruit in ten dishes Mr. Frost, gardener to E. L. Betts, Esq., Maidstone, was first. He had a Queen Pine, two Grapes, Peaches and Nectarines, a Melon, two Plums (dishes), Pears, and Cherries. The *Ickworth Imperatrice* Plum (not Hickworth) and *Coe's Golden Drop* were very fine. Mr. Page, gardener to W. Leaf, Esq., Streatham, was second with two Pines, two Grapes, two Melons, Peaches and Nectarines, Plums and Figs, and the best arranged there for effect. Mr. Kaile, gardener to Lord Lovelace, was next with a Pine, two Grapes, two Peaches, one Nectarine and Plum, and one Pear. All the numbers refer to so many dishes of each. In this class stood Mr. Park, gardener to G. H. Vernon, Esq., East Redford.

Then followed baskets of 12 lbs. each of Black Grapes and White Muscats. The first prize for Muscats went to Mr. Solomon, Peckham Rye, market-gardener. They

were splendid. The second prize (Black Hamburgs) to Mr. Kay, market-gardener, Finchley; and the third prize to Messrs. Sperry and Campbell, of Brighton; also a third prize to Mr. Harrison, of Oatland's Park, Weybridge.

In the competition for the largest bunches of Grapes were three competitors, two with *Barbarossa* and one with *Nice*. These were only about one-half ripe, and went without their reward; one of the *Barbarossa* bunches was marked 4½ lbs.

There were five pots of Black Hamburgs, and one of them (No. 16) from Mr. Burnell, gardener to H. F. Williams, Esq., Lower Norwood.

The first prize for a set of three Pines went to Mr. Dawson aforesaid. The first for one best Pine to Mr. Bailey, gardener to J. Drake, Esq., Shardeloes; it was 5 lbs. The second to Mr. Page aforesaid; and the third to Mr. Davies, Hammersmith, whose Pine was 4½ lbs.

There were three large and seven smaller pots of Orange trees, in health and in abundance of fruit, from Mr. Walters, gardener to A. J. Moore, Esq., Sydenham, which ended the first double stand.

On the corner of the first long table stood the *Golden Hamburgh* Grapes for Mr. Veitch's prize, which went to Mr. Scott, gardener to Lord Sherbourn, North Leach. The next best was from Mr. Kay, market-gardener, of Finchley; and there was another dish of the same Grape further on from Mr. Scott aforesaid.

The next was a competition for two dishes of Black Grapes—one different kind in each dish; they were principally *Hamburgs* and *Black Prince*. Mr. Hill, the usual champion from Keele Hall, was first here; his *Black Princes* were the three finest examples of that Grape that have been exhibited in my time; his *Hamburgs* were not so extraordinary. Mr. Frost was second with *Hamburg* and *Barbarossa*, well coloured; and Mr. Kay was third; and an extra to Mr. Sage, of Gopsall Hall. There were several others with very handsome Black Grapes.

For *Muscats* Mr. Drewett, of Denbies, near Dorking, took the lead in Willis's Rooms, and has kept it still; he was first with as finely and evenly-set *Cannon Hall Muscats* as ever the *Black Prince* was seen to be. The *Cannon Hall* is the best one to travel of all the Grapes, and will grow and set as evenly as the *Hamburgh* under the highest skill, but not otherwise. It will henceforth be the key Grape to tell a Vine-border, and declare the highest skill in Grape-growing. Mr. Frost was second with noble *Muscats*; and Mr. Little, gardener to A. Darby, Esq., near Slough, was the third; and equal to him was Mr. Smith, gardener to H. Littledale, Esq., Liscard Hall, Cheshire. There were also pot-Vine *Muscats* from Mr. Snow; Mr. Miller, gardener to Sir W. Smith; and Mr. M'Pherson, from Radbourne Hall, Derby, who also exhibited two large pots of Black Grapes, one of which was the *Richmond Hill Hamburgh*.

Then came Peaches and Nectarines. First, a dish of each; then two dishes of each. First prize to Mr. Little, for *Elruge* Nectarine and *Walberton Admirable* Peach. Second, to Mr. Dawson, who did not name his dishes; and third, to Mr. Eckford, *Murrey* Nectarines, and *Royal Georges*. Also, an extra, to Mr. Wortley, gardener to Mrs. Maubert, Norwood, for fine *Noblesse* Peaches, and *Elruge* Nectarines. In the two-and-two dishes of Peach and Nectarine, the first went to Mr. Hazell, gardener to Mrs. Tidswell, Denmark Hill. His were noble-looking *Admirable* and *Noblesse* Peaches, *Newington* and *Elruge* Nectarines. Second, to Mr. Turner, gardener to James Hill, Esq., Streatham, *Violette Hâtive* and *Murrey* Nectarines; *Bellegarde* and *Grosse Mignonne* Peaches; and third, to Mr. Little, for *Pitmaston Orange* and *Oldacre's Black* Nectarine (?) *Late Galande* (?) and *Walberton Admirable* Peaches. Also, an extra prize, to Mr. Kaile, for very good *Barrington* and *Noblesse* Peaches; *Violette Hâtive* and *Elruge* Nectarines. And also an extra prize

to somebody for a capital idea moderately carried out. A basket of ten kinds of fruit, arranged for effect in the shape of a cone, rising from the rim of the basket to the centre, from which a glass funnel for a nosegay rises, nine to ten inches above the cone of fruit. From the edges of the funnel hung down, all round, over the fruit, sprigs of Jasmine, then a mixed lot of flowers for the nosegay, and a centre of *Tritoma uvaria*. Now, the green glass in the frosted-silver stand, in my "keeping-room," is the same as that funnel. My fringe to the glass nosegay is side-sprigs of *Humea elegans*, and was so last season. My centre-piece is also *Tritoma*, and the body of the nosegay is altered every week. Such devices are not out of place on dessert-tables; but there were two fundamental errors in this fruit-device which would keep it out of company who appreciate what is appropriate—Grapes, Melons, Peaches, Pears, Plums, Nectarines, Currants, and *Tomatoes*! Who could conceive the idea of putting raw *Tomatoes* in a dessert before a civilised being? The next fault was in principle, Melon was higher up in the cone than small fruit, indicating that a false cone of stuffing was inside, which is never done in actual desserts. A vast deal of nicety, good taste, and skill may be shown in the dishing and placing of collections of fruit; and young gardeners are less knowing in that than in any other branch of their profession.

For the best Figs. Mr. Rust, gardener to the Right Hon. L. Sullivan, of Fulham, was first, with *Brunswick* and *Brown Turkey*. Second, to Mr. Goldsmith, gardener to Sir W. Farquhar, Bart., Dorking. They were *Lee's Perpetual* and *White Ischia*.

Cherries, which were all very fine. First prize to Mr. R. H. Betteridge, Steventon, Berks. They were *Morellos*. Second, to Mr. Wortley; and third, to Mr. Rabbitt.

Melons were an enormous trial for the Judges; every Melon was cut and tasted; and if some of the tasters do not get the cholera through it, it will be a mercy. There were scores of them, but I only took a few notes of the smaller kinds. If I were a duke, or a marquis, or even a baron, I would not tolerate a Melon in my dining-room that was over 2 lbs. weight. There is nothing so thoroughly vulgar as putting a large Melon before gentility. But as long as vulgar people are happy, societies must encourage fruit to their taste. *Tomatoes* and large Melons to wit!

The best Melon there was from Mr. Bailey, of Shardeletes. It was a scarlet-flesh, green-looking fruit, about 1½ lb. in weight. The next best was from Mr. Kaile, gardener to Lord Lovelace, also a small green-looking Melon, with firm scarlet flesh. The small *Egyptian Green-fleshed* breed were also very good, but the smell from so many large Melons obliged me to leave and go to

The Plums. The first prize for them went to Mr. Hutchison, gardener to H. J. Cotton, Esq., Margate; they were *Jefferson*, *Victoria*, and *Washington*. Second to Mr. H. Block, Broadstairs, for *Green Gage*, *Magnum Bonum*, and *Incomparable*—a large blue Plum; and the third to Mr. Nicholson, gardener to S. Majoribanks, Esq., Bushy—*Green Gage*, *Magnum Bonum*, and *Jefferson*. I was told by a good judge that, for all purposes, the *Jefferson* Plum is the best of them all, but that it is a bad setter.

Apples were very numerous and good-looking. Mr. Whiting, of the Deepdene, had the first prize for dessert Apples—*Adams' Pearmain*, *Fearn's Pippin*, *Ribston*, *Franklin's Golden Pippin*, *Sweeny Nonpareil*, and *Yellow Ingestrie*. Second to Mr. Mortimer, gardener to Miss Browne, Carshalton—*Celini Pippin*, *Claygate Pearmain*, *Downton Pippin*, *Ribston*, *Nonsuch*, and *Nonpareil*. Third to Mr. James Holder, Reading—two *King of the Pippins*, *Golden Pippin*, two dishes *Ribston*, and *Fearn's Pippin*.

Kitchen Apples. First, Mr. Mortimer again—*Golden Noble*, *Flower of Kent*, *Celini*, *Gloria Mundi*, *Hoary Morning*, and a large *Codlin*. Second to Mr. Frost—

Celini, *Hawthorndean*, *Northern Greening*, *Wellington*, *Alfriston* and *Gloria Mundi*. Third to Mr. Newton, gardener to G. J. Graham, Esq., Enfield Chase—*Hollandbury*, *Alexander*, *Brabant Bellefleur*, *Dutch Codlin*, *Kentish Fillbasket*, and *Graevenstein*; and an extra prize to Mr. Turner, gardener to J. Hill, Esq., Streatham.

Dessert Pears in six dishes. First, Mr. Harrison, Oatlands—*Bon Chrétien*, *Duchesse d'Angoulême*, *Chau-montel*, *Beurré Diel*, *Marie Louise*, and *Passe Colmar*. Second, Mr. Holder, Reading—*Brown Beurré*, *Marie Louise*, *Beurré Rance*, *Williams' Bon Chrétien*, *Duchesse d'Angoulême*, *Louise Bonne of Jersey*. And third to Mr. Park with similar kinds.

Dishes of three kinds of Pears were also awarded; and the heaviest dish of Pears, the first for which was to Mr. Harrison for six *Duchesse d'Angoulême*, which weighed 5 lbs. 2 ozs. Second to Mr. Hally, Blackheath, for twelve ditto, weighing 8 lbs. 8½ ozs.

For single kinds of best-flavoured Pears. First to Mr. Elliott, gardener to C. Davidson, Esq., Sydenham Hill, for *Williams' Bon Chrétien*. Second to Mr. Hutcheson for *Beurré d'Amanlis*. Third to Mr. Harrison for *Williams' Bon Chrétien*.

Amateurs keeping two gardeners, fruits, flowers, and vegetables, were really splendid, and very suggestive. They occupied the old end of the great transept, in very deep stalls, the flowers and plants at the back, then vegetables, then Pines, Melons, Grapes, and all manner of fruit, just as fine as the best of them, with flower designs, nosegays, and fancy arrangements. Altogether, this was the best telling part of the Show. The first prize went to Mr. James Ellis, Pymmes Park, Edmonton; second to Mr. J. W. Nicholson, Stamford Hill; third to Mr. Thos. Lee, Eltham, Kent; and an extra prize to Mr. Norman, Sydenham.

Then amateurs "having the assistance of a gardener one day in the week." Here Mr. Jno. J. Bennett, Upper Tulse Hill, was first; also Mr. J. Smith, Basingstoke; second Mr. Sweetlove, Marstone, who had splendid Parsnips, Carrots, and Celery; third, Mr. Henry Moses, Point House, Blackheath; and an extra prize to Mr. C. K. Fry, Haye's Common, Bromley. Another second prize to Mr. James August, Beddington, Surrey, who had the finest standard *Lantana* that has yet been exhibited. Mr. D. Davies, of Hammersmith, also had a prize here.

Then real cottagers, and Mr. J. E. Downing, Merton, Surrey, was first; Mr. George Howse, jun., Chalvey, near Slough, second; and Mr. Jas. Jones, Eltham, Kent, third, with lots of extra prizes. One of which, for the finest *Lapstone Kidney* Potato, went to Mr. W. Molyneux, Newnham Park, Oxford. Best Onions to Mr. James Hughes, Cuddesden, Oxon; but the very sight of so many and such large Onions affected my eyesight, and I had to drop it here and go to the plants.

The Scarlet Geraniums, a good force, five or six in one pot, and some only with one plant in a pot! How they could judge them I know not. There were seven or eight collections of them, and all old sorts. Mr. Reid, first; Mr. Tennant, second; and Mr. Windsor, third.

Ferns and Lycopods remarkably fine. First for Lycopods to Mr. Higgs, gardener to Mrs. Barchard; second, Mr. Bunney; and third, Mr. Wooley, nurseryman, Chess-hunt. Is he the Orchid gladiator that was?

Then the Fuchsias—a goodly lot, well done and remarkably well set this time; but with the exception of *Princess William of Prussia* there is nothing to say. First prize to Mr. Cannell, gardener to E. Groves, Esq., Tulse Hill, in three pairs, thus set—*Bo Peep*, red, and *Fairest of the Fair*, white, in front; *Venus de Medici* and *Souvenir de Chiswick* next: or white and red in contrast to red and white—the back pair red. Second prize to Mr. Elliot aforesaid. Two reds in front; then two red and two white, cross-cornerwise. These two gardeners must have arranged to reverse each other's placing, and

they did it capitally. Mr. Oubridge was third, and Mr. Rhodes fourth.

Then variegated and fine-leaved plants in high order, great sizes, and good setting, with nothing new. First prize for variegated to Mr. Young, gardener to W. H. Stone, Esq., Dulwich. Second, Mr. Bunny.

Then stove and greenhouse plants in collections of six plants. They were the best-looking that ever were exhibited so late, as also were the same in collections of ten plants. In the latter Mr. Baxendine was first, Mr. Kaile second, and Mr. Green third. The first had *Allamanda*, *Dipladenia splendens*, *Stephanotis*, *Crowea*, *Clerodendron Kämpferi*, *Æschynanthus grandiflorus*, two *Heaths* and *Vincas*. Mr. Kaile had a fine *Pleroma*, two *Vincas*, *Franciscea*, *Statice Oldfordii*, and *Clerodendron Kämpferi*. Mr. Green had *Rochea falcata*, with four spikes, *Ericas*, *Allamandas*, *Ixoras*, *Lisianthus*, *Tetradlea*, and *Cattleya violacea*. And Mr. Peed had a fourth prize for a pair of *Vincas*, a fine *Crowea saligna*, *Cyrtoceras*, two *Dipladenias*, *Aphelandra cristata*, very early for it and others. A specimen plant of *Ixora Lobbii* from Mr. Green. Then the sixes, which began with Mr. Page getting the first prize for *Cyrtoceras*, red and white *Ixoras*, *Pleroma*, *Allamanda*, and *Erica retorta*. Second, Mr. Rhodes, with *Hoya carnosus*, *Lantana crocea*, *Dipladenia crassinoda*, *Cyrtoceras*, and *Erica retorta major*. Third, Mr. Reid with *Pentas carnea*, *Vinca*, *Begonia odorata*—an old white sort, and hardier than usual, *Allamanda*, and *Plumbago Capensis*. Fourth, Mr. Chilman, two *Vincas*, two *Clerodendrons*, *Cyrtoceras*, and others.

Cockscombs and Balsams endless, and hardly a bad-grown one among them. Cockscombs prodigious. The two best collections of Balsams on a par with first-rate country growth seven years back, but by far the very finest ever shown near London. First, for Cockscombs, Mr. Savage, gardener to Miss Guillemeau, Lower Edmonton. Second, Mr. Titchmarsh, gardener to E. M'Murdo, Esq., Lower Edmonton, also. The two were all but a tie. In Balsams, the first was Mr. Brown, gardener to J. C. Thurn, Esq., Dulwich; and second, Mr. Green.

In twenty specimens of British Ferns, Mr. Sims, of Foot's Cray first, as usual. Mr. Lavey, second. He had a large *Trichomanes radicans* under a hand-glass. Third, Mr. Baily. He also had the same *Trichomanes* in the same way. Passing over heaps of things now, to stop at *Vallotta purpurea minor* from Mr. Carson. Eight large bulbs in one large pot, all in fine bloom.

A new *Begonia* from *Rex*, and much finer, called *Marschallii*, after the owner thereof, the well-known horticulturist of Leeds, with whom is Mr. Franklin, once of the Lawrencean collection. The leaf is all grey, except a green star in the centre, and a green Vandyke-like margin. A noble plant.

Collection of double *Petunias*, of fancy *Begonias*, brought me to a large collection of new, winter-flowering plants, the collection of new *Achimenes*, which Messrs. Milne, Arnott, and Co., are now advertising. They are really a fine-habited race, with a profusion of bloom, and had a first-rate prize; as also had several new things from Mr. Veitch, his *Pteris argyrea* is just what he says it is. His *Selaginella Lobbii* is like some drooping Cypress. *Selaginella atro-viridis* is also very fine. A new specimen of *Cissus*, and lots of others which had prizes. Here stood a new *Richardia* or *Calla*, *alba punctata*, of Hooker; I believe it had a yellowish flower, is from Upper Egypt, and has stood out in England, at Raby Castle, last winter, without protection. A fine thing introduced in 1858.

Heaths in sixes. First, Mr. Peed. Second, Mr. Rhodes.

Exotic Ferns, fine plants. First, Mr. Bunny. Second, Mr. Wooley. Third, Messrs. Milne, Arnott, and Co. Fourth, Mr. Halley.

Collections of *Ixoras*. First, Mr. Carson, three scarlets and one *Crocea*.

Orchids. First, Mr. Carson, also. *Dendrobium formosum*, *Aërides suavisimum*, *Oncidium lanceanum*, *Eria leucostachya*, *Cæloglyne speciosa*, and *Zygopetalon maxillare*, a dwarf free-flowering specimen.

Dahlias, and they were the pride of the Show, and so crowded round that no one could judge them as they ought. Mr. Turner was first in fifty kinds. Second, Mr. Kimberly, near Coventry. Third, Mr. Keynes, of Salisbury; and extra prize, Mr. Legge, Edmonton. In the amateur's class of twenty-four kinds, the Rev. C. Fellows, of Norwich, was first; Mr. Dodds, of Salisbury, second; Mr. Holmes, Brook Lodge, Norwich, third; and some extras. In fancy *Dahlias* of twelve kinds, Mr. Turner was first; Mr. Fellows second; Mr. Keynes third; and several extras.

Messrs. Turner, Keynes, and Dodds, were strong in seedlings, and certificates were abundant. Mr. Keynes stood at one end: his *Mrs. Wellesley Pigott*, a splendid white, had a certificate; *Lady Douglas Pennant*, ditto, a fine lemon yellow; *William Dodds*, ditto, a fine orange yellow; *Sir George Douglas*, ditto, perhaps the best of them, orange very deeply edged with crimson, a splendid combination of the very richest colours; and *Neville Keynes*, an orange tipped with peach.

Probably Mr. Dodd's *Lilacina variegata* will turn out to be the most popular *Dahlia* of them all, although it had no prize, being a true bedding kind. It is a charming light lilac, and all the leaves are variegated; is of the same size and habit as *Profusion*; and hereby I do stake my fortune on the fact that *Lilacina* will pay best of all the seedlings at this Show, although no prize or any judicial notice was taken of it.

Some very pretty fancy ones from Mr. Rawlings had no prize either. The richest coloured in Mr. Turner's seedlings were *Purple Standard* (but it had no prize); *George Elliott*, a rosy-purple, very pretty (had a certificate); *Harlequin*, orange and crimson, ditto; *Queen Mab*, ditto, a light-tipped red; *Pluto*, ditto, a purplish-red, tipped light; *Mrs. H. Vyse*, a shaded deep, lilac ditto; and *Beauty*, ditto.

Cut *Roses* in fifty kinds, very good. Messrs. Paul first here, Mr. Francis second, and Messrs. Fraser third. There were also prizes for twenty-four or twenty-five kinds of cut *Roses*. *Hollyhocks* not so numerous as last year; the first for spikes to Mr. Minchin, Hook Norton; second to Mr. Aylott, gardener to T. S. Tangueray, Esq., Hendon; and third to Mr. Bragg.

China Asters splendid. The same Mr. Sandford who took the first prize last year was also first now: he is gardener to J. Thomasset, Esq., Walthamstow. Mr. Francis second, and Mr. Kaile third, all in French kinds of twenty-four sorts. The Quilled or German *Asters* were perfection itself. First, Mr. Bealey, East Hendred, Berks; second, Mr. Betteridge, Stevenon, Berks; third, Mr. Westbrook, Abingdon, Berks, also extras.

Mr. Standish, of Bagshot, stood well with collections of new *Gladioluses* and *Phloxes*. Mr. Cutbush, Highgate, first in *Liliums*, Mr. Higgs second, and Mr. Reid third.

D. BEATON.

SIMPLE HINTS ON PROPAGATING BEDDING PLANTS.

VERBENAS.—Where there is no convenience of cold pits, frames, or hand-lights, the best plan is to lay young shoots in small pots, much in the same way as is done with *Strawberry* runners, and when the pot is full of roots, then sever the young plant from its older parent. All attempts to take up and keep old plants will end in disappointment. I would sooner have such a nice little healthy plant than a huge specimen that would fill, when taken up, a bushel basket. Such layering should be done in August, and the first fortnight of September. In looking along the shoots, choose the point of one in which you observe incipient roots on the lower side of the joints.

Wherever there are conveniences of cold frames or pits, I prefer cuttings, and these I would commence taking off in the

first week of September. With shade in bright sun, these will be rooted and able to bear plenty of air before winter. They will keep all the better if they have had no assistance in the way of heat, except what the sun gives them. Those who pot their cuttings off singly, may commence in the second week of August. For want of space, I prefer keeping them in the cutting-pots; two rows placed thickly round a four-inch pot, leaving a little bit in the centre which a cutting would fill, but which unfilled is useful for giving the pot a little drop of water in dull, frosty weather, when it would not be advisable to wet the foliage, and yet the soil may be found too dry. When it can be done, I prefer placing these cuttings at such a distance from the glass, that shading is reduced to a minimum, and, therefore, the draining-out process is prevented. Had I room, I would greatly prefer pricking out the cuttings in beds and frames at once, and then thinning them out in March and April. As it is, I chiefly use these cutting-pots as store-pots for obtaining several successions of cuttings in spring, having long found that spring-struck plants flourish in every way rather the best. Light sandy soil suits them best for the winter. Provided the pots are not too full, a dusting over the surface with silver sand and bruised charcoal two or three times in winter, will help to keep all healthy and nice. In taking off such cuttings I like to be as particular as for *Anagallis*, &c., slipping off the little side-shoots that have not shown flower, if such can be got, and from one to two inches in length, though sometimes we are forced to have them a little longer, and, in consequence, reduce them in length. I choose these for two purposes. First, they answer better in every way than cuttings made by cutting up the flowering-shoots: and, secondly, though more time is required at the bed, there is less time required in making, and the beds present no trace of having been visited for cuttings. Looking at some propagating-sheds in the autumn, you would imagine that a donkey load of shoots had been cut from the flower-beds, in order to get from these a dozen pots of cuttings. I prefer selecting the cuttings at the beds, and leaving the flowering-shoots to effect the purposes contemplated, when the plants were turned out in May. From these little cuttings we remove generally fully half the foliage; and if that at the point is larger than is convenient, the leaves there are cut in two with the knife, in order that the perspiring surface may not be too much for the cutting. Preparing cutting-pots and pricking-in cuttings have been so often referred to, that it would be needless to repeat directions here. There is one thing, however, which I must not forget, as next to essential, with these cuttings, when struck in September.

If struck earlier I should find the plants getting too large and cumbersome before winter. When struck so late the cuttings are apt to be affected with thrips and other insects, although it may require very sharp eyes to detect them before the cuttings begin to grow. In making them, therefore, every half-dozen or so are held by the lower end between the thumb and fingers; and the top and all but the fresh-cut base well soused in a flat containing a solution of tobacco and sulphur-water, and then laid down and allowed to dry before being inserted. They are then sprinkled in the usual way: syringed as they need it before rooting, shaded when the sun is too powerful for them—and only then—and at all times air given at night, unless the weather is too severe; and the young plants, in consequence of the cuttings being dipped, &c., hardly ever are affected with thrips, &c., during the winter.

CALCEOLARIAS.—A few plants have died here this season, but only a few; the most have done well. The best dwarf for a small compact bed I have met with is *Aurea floribunda*. The *Clumber Yellow* was good with me last year, and I saw it very vigorous at some other places: but this season it has done worst with me, and has numbers of the black leprous patches on the leaves—the sure sign that all is not right. I used to grow the *Kentish Hero* in great force here, but now I can make nothing of it: for though I get fresh healthy cuttings from a distance, and turn them out healthy in ground where they had never been before—by the month of July, if not earlier, these leprous spots begin to affect leaves and stem, and no remedy I have tried has ever arrested the evil. Several friends, and my neighbour Mr. Snow, continue to keep it in good health, though most of them were supplied with cuttings from this place before the plants took to such tantrums. As I have said, however, the general stock has succeeded very fairly here this season, even though in the hot dry weather we could scarcely give them a drop of water.

My own experience and observation lead me to the conclusion, that something of the failure of *Calceolarias* in summer is owing

to the plants being too forward at planting-out time, or being in bloom when turned out. The plants flourish so well in a cool moist atmosphere, provided frost is excluded, that unless they are thick enough to shade themselves, they are easily injured by dry heat in summer—and especially if in a flowering state when turned out either from pots, or, what is better, from beds where they enjoyed a little protection in cold weather. Owing to these circumstances, it is worse than useless to hurry on the striking of these plants early in the autumn—for, letting alone the fact that the earlier the cuttings are inserted the longer does it take them to emit roots, the later-inserted ones are more compact and shorter at the end of the winter; and, if kept cool, in spring are less likely to be too forward when turned out into beds in April and May. When beds consist of one thing, the *Calceolarias* should be among the first things planted, as a few degrees of frost will not in general hurt them, and thus they get good root-hold before the hot and dry weather sets in. I therefore prefer the last week in September and the first three weeks in October for inserting the shrubby *Calceolaria*-cuttings for beds. In choosing them I prefer short stubby base or side-shoots, and remove fully half of the foliage. I put a portion in pots and moveable boxes: but I greatly prefer inserting them at once in cold frames and pits, and thinning them out in the spring. The *Calceolarias* are always most healthy and vigorous that never smell fire heat under any circumstances. I have frequently in severe weather had such plants covered up for three weeks, night and day, and they looked far better in March and April than those that, being placed in houses where frost was kept out by fire heat, had light given to them every day, and most commonly plenty of air too. A dry, hot atmosphere in their early stages is so much their abomination, that no amount of syringing, or watering, or air-giving will counteract such a state of things. Where *Verbenas*, and even *Geraniums*, would damp off and die, the *Calceolaria* will be quite at home, if the foliage should be dewed for weeks. There must, however, be no stagnant water at the roots. Pots, boxes, and especially beds in which the cuttings are placed, should be well drained. Sandy loam, with a little sweet leaf mould and fine charcoal, strike and grow them in the young state to perfection. These small cuttings are also dipped in tobacco-water.

FLORISTS' PELARGONIUMS.—Few of these answer for bedding purposes, and even those that do bloom somewhat continuously make generally such large foliage when planted out ever so shallow, that the trouble of foliage-picking neutralises considerably other advantages. When much is done in that way, it is the best plan to pot the plants in spring, if not before, and then plunge the pots in the beds. This checks extra-luxuriant growth. All the more succulent of these may be planted in the border from July to the end of August, and few will fail to make good plants. Those who like to avoid the trouble of lifting and potting, and boxing again, will place them at once into pots, either singly, if there is plenty of room, or as thick (within one inch of each other) as they can stand, where room is short. The better ripened the shoots are, provided there are buds at the joints, the better will such cuttings succeed, and the less trouble will they occasion. When cuttings are making, young gardeners are apt to select the points of the shoots, and throw away the leafless, better-ripened parts. More than twenty years ago I got a parcel of cuttings sent to me that did not possess a single leaf. For all the world they just resembled in appearance a bunch of Currant shoots at Christmas. Being somewhat green then, I wished my friend had done better by me; but he did the very best possible. He was considerably more experienced, and he knew that such shoots would not be injured by a long coach journey,—as almost all cuttings are when sent by the inexperienced. The heating they undergo when sent in the usual way, injures or destroys their vitality. Well, these cuttings were put in, and, so far beat my beautiful, green, nice young shoots, that, for all such *Geraniums* when making cuttings in the autumn, I prefer the well-ripened base of a shoot to its more green point; and, for general purposes, cut every cutting into two joints—one at the base cut through for the bottom, and one left at the top to make the fresh shoot and head. In particular cases, just as in the *Scarlets*, we would turn every bud with a bit of the shoot into a cutting. When these are not put in before September, I prefer placing them in pots at once, and, if possible, putting them under glass in a spent Cucumber or other bed, from which all the surface soil has been removed to get rid of any insects, and fresh ashes strewed over the bed before the pots are placed on it.

FANCY GERANIUMS.—Some of these make capital beds, but all the weaker-growing sorts should be placed in pots or boxes at

once, and, if possible, be set under glass. They will want nothing more, if inserted from July to the middle of August. After that time they will relish a little shade in the heat of the day, and just the slightest heat, as a spent Cucumber-bed, at their bottom, until they are growing freely. If space could be given them in winter, these would make good plants before May; but in many cases of free, continuous-flowering kinds, it is best to propagate them in spring, about April or so; keep them close and stunted the first summer, and plant out in the May following. The *Diadematum*, the beautiful pink old one, and the more crimson varieties of *Rubescens* and *Superba*, do best under this treatment, and so do the scarlet *Jenkinsonii*, *Red Rover*, the pretty *Rouge et Noir*, *Lady Mary Fox*, *Statuiskii*, *Fragrans*, *Jehu*, *Jehu Superb*, *Moore's Victory*, *Rollison's Unique*, *Scarlet Unique*, *Lilac Unique*, and many others. The two great beauties, as respects scent, *Citriodora* and *Prince of Orange*, do also best under this treatment, though they strike pretty freely in the autumn. One of the best for a white bed, *Floribunda*, strikes freely in autumn, and the plants will bloom freely next season. Young shoots of all these, however, strike very freely in March, April, and May; and if kept stunted all the summer, will make rare blooming plants for next year out of doors, better even than the old plants, however carefully taken up and preserved.

(To be continued.)

R. FISH.

HARDY FLOWERING HERBACEOUS PLANTS.

(Continued from page 335.)

APIOS.

Nat. ord., Fabaceæ. Linn. Diadelphia Decandria.

GENERIC CHARACTER.—*Calyx* campanulate; four teeth almost obsolete; fifth tooth elongated, acute, under the keel. *Corolla* papilionaceous; keel linear-falcate, reflect upon the top of the vexillum. *Stipe of ovary* sheathed by a small tube. *Legume* leathery, two-celled, many-seeded; seeds intercepted by dissepiments.

APIOS TUBEROSA (tuberous-rooted). Only one species being known, the generic character applies exclusively to it. It was formerly called *Glycine Apios*. 6 ft. Brown and pink. August. N. America.

The tubers of this plant are said to be eatable when cooked in the manner of a Potato. It is a climbing, herbaceous perennial of considerable beauty, requiring sandy loam and a little peat.

Propagated by taking up a strong plant in October, dividing it into pieces, with a bud or more to each division, and replanting immediately where they are to grow permanently. The soil should be deep and dry.

APOCYNUM—Dog's-BANE.

Nat. ord., Apocynaceæ. Linn. Pentandria Monogynia.

GENERIC CHARACTER.—*Calyx* five-parted. *Corolla* campanulate; tube enclosing five acute teeth, which are opposite the segments of the limb; throat naked. *Stamens* enclosed; anthers sagittate, cohering by the middle to the stigma. *Style* almost absent. *Stigma* dilated. *Glands* five, hypogynous, alternating with the stamens.

APOCYNUM ANDROSEMIFOLIUM (Tutsan-leaved Dog's-Bane). *Leaves* ovate, glabrous; *cymes* terminal and lateral; *corolla* tube double the length of calyx. 2 ft. Striped. August. N. America.

A. CANNABINUM (Hemp-like). *Leaves* lanceolate, acute at both ends, glabrous; *cymes* panicle; *calyx* as long as corolla tube. 3 ft. Yellow. August. N. America.

A. HYPERICIFOLIUM (Hypericum-leaved). *Leaves* oblong, glabrous, mucronate, petioles very short, rather cordate at base; *cymes* shorter than the leaves; *calyx* about the length of corolla tube. 2 ft. White. June. N. America.

A. VENETUM (Venetian). *Leaves* oblong-elliptic, glabrous, mucronate, rather attenuated at base; *cymes* panicle, lateral and terminal; *calyx* about as long as corolla tube. 2 ft. White. June. Adriatic Islands.

Curious interesting plants. Propagated by seeds, offsets, and division. Gather the seeds when ripe, and sow them in April, on a warm dry border; and when the seedlings come up and are large enough to be handled, transplant them into any good loamy, sandy soil, in patches of threes, where they are to remain. Offsets may be taken off with roots and planted similarly. Such as do

not make offsets or seeds should be taken up in autumn, divide into good-sized pieces, and planted in fresh soil in the flower borders.

ARENARIA—SANDWORT.

Nat. ord., Caryophyllaceæ. Linn. Decandria Trigynia.

GENERIC CHARACTER.—*Calyx* five-sepaled, spreading. *Petals* five, entire. *Stamens* ten, or fewer from abortion. *Capsules* one-celled, opening by three or six teeth at the apex. *Seeds* many.

ARENARIA AUSTRIACA (Austrian). *Leaves* linear-awl-shaped, three-nerved; *stem* tufted, rather panicle; *peduncles* terminal, very long, twin, rather downy; *petals* obtuse, emarginate; *sepals* three-nerved, very acute. 6 in. White. July. Austria.

A. BALEARICA (Balearic). *Plant* tufted, creeping; *leaves* ovate, shining, rather fleshy, ciliated; *peduncles* elongated, one-flowered; *flowers* drooping; *sepals* ovate, bluntish, nerveless, much shorter than corolla; *capsules* ovate, six-valved, hardly longer than calyx. 3 in. White. July. Majorca.

A. CESPITOSA (turfy). *Stems* tufted, very leafy; *leaves* awl-shaped, bluntish; *calices* and *peduncles* smoothish; *sepals* ovate-lanceolate, acuminate, with three remote, equal ribs; *capsules* cylindrical, three-valved, longer than calyx. 3 in. White. July. Switzerland.

A. CAPILLARIS (capillary). *Lower leaves* in tufts, very long, capillary; *stem* rather naked, terminated by a three-flowered umbel; *peduncles* elongated, one-flowered, capillary; *bracts* membranaceous, glaucous; *petals* ovate, rather crenulate, double length of calyx. 6 in. White. July. Siberia.

A. DAHURICA (Dahurian). *Leaves* awl-shaped, filiform, serrulated; *stems* erect, simple; *panicle* dichotomous, few-flowered, *peduncles* and *calices* covered with clammy down; *sepals* lanceolate-linear, nerved, not length of petals. 1 ft. White. July. Dahuria.

A. Densa (dense). *Leaves* oblong-lanceolate, scabrous; *stems* tufted, branched, ascending; *sterile branches* short, floral ones generally three-flowered; *sepals* ovate, rather scarious; *petals* double length of calyx. 3 in. White. July. Hungary.

A. FORMOSA (handsome). *Stems* erect, simple, like the peduncles viscid-haired; *leaves* linear, setaceous, ciliary, scabrous; *panicle* trichotomous, few-flowered; *sepals* thick, obtuse, inner ones very broad, glandular-haired on the back, half length of the obovate petals. 6 in. White. June. Dahuria.

A. GRAMINIFOLIA (Grass-leaved). *Stems* erect, simple; *leaves* long, awl-shaped, filiform, scabrous from serratures on the edges; *panicle* trichotomous, downy, lax; *sepals* very blunt, one-sixth length of obovate petals. 6 in. White. July. Siberia.

A. GRANDIFLORA (large-flowered). *Stems* usually one-flowered; *leaves* awl-shaped, broadish, flat, three-nerved, ciliated, radical ones crowded; *peduncles* very long, downy; *sepals* ovate, awned, three-nerved, half size of petals; *capsules* ovate, six-valved, half length of calyx. 3 in. White. July. Switzerland.

A. HIRSUTA (hairy). *Plant* hairy; *stems* decumbent; *leaves* awl-shaped, three-nerved, bluntish, lower ones imbricated, recurved; *panicle* many-flowered, dichotomous; *sepals* acute, rather five-nerved, hairy, long as corolla; *capsule* three-valved; *seeds* rather disciform, with echinated edges. 3 in. White. July. Caucasus.

A. IMBRICATA (imbricated). *Stems* creeping, hairy; *leaves* linear-awl-shaped, ciliated, crowded; *peduncles* one-flowered, terminal; *petals* longer than calyx; *calyx* bluntish, striated, hairy; *capsules* three-valved. 3 in. White. July. Caucasus.

A. JUNIPERINA (Juniper-leaved). *Stems* erect, firm; *leaves* awl-shaped, stiff, spinose, lower ones in bundles, upper ones distant; *sepals* ovate, usually one-nerved; *petals* obovate, double length of calyx; *capsules* ovate-roundish, three-valved, hardly exceeding the calyx. 3 in. White. July. Siberia.

A. LARICIFOLIA (Larch-leaved). *Stems* ascending, one to three or six-flowered, rather scabrous; *leaves* awl-shaped, denticulately-ciliated; *calyx* cylindrical; *sepals* bluntish, triple-nerved, hairy; *petals* double length of sepals; *capsules* three-valved, longer than calyx. 3 in. White. August. Britain.

A. LONGIFOLIA (long-leaved). *Stems* erect, simple; *leaves* awl-shaped, filiform, serrulated; *panicle* trichotomous, glabrous, crowded; *sepals* ovate, obtuse, below half length of obovate petals. 6 in. White. July. Siberia.

A. MACROCARPA (broad-fruited). *Plant* tufted; *leaves* crowded, awl-shaped-linear, flat, with ciliated edges; *peduncles* terminal, one-flowered, leafy; *sepals* linear; *petals* ovate, double length

of sepals; capsules oblong, thrice length of calyx. 3 in. White. July. N. America.

A. MARINA (marine). Stems prostrate, nearly smooth; leaves filiform, shorter than the internode; sepals lanceolate, obtuse, scarious at the edges; capsules half length of the calyx. 2 in. Purple. July. Germany.

A. MARGINATA (margined). Stems much branched, ciliated; leaves linear-awl-shaped, smoothish; sepals acute-edged. 6 in. White. July. Caucasus.

A. MONTANA (mountain). Plant downy; leaves lanceolate-linear; sterile stems very long, procumbent; peduncles terminal, very long, one-flowered; fruit-bearing stems nodding; capsules ovate-globose, six-valved, long as calyx, valves bluntish; seeds kidney-shaped, rough. 3 in. White. July. France.

A. MULTICAULIS (many-stemmed). Leaves ovate, pulpy, thick, ciliated; stems procumbent; sepals scarcely nerved. 6 in. White. July. Europe.

A. NARDIFOLIA (Nardus-leaved). Stems erect, tufted, three-flowered; leaves awl-shaped, pungent; petals oblong, obtuse; sepals obtuse, half length of petals; capsules three-valved. 6 in. White. July. Siberia.

A. NORVEGICA (Norwegian). Plant glabrous; stems terete, procumbent, one and two-flowered; leaves spatulate, glabrous; flowers terminal, rather globose; sepals ovate, obtuse, scarcely nerved, margins rather membranaceous, long as corolla; capsules ovate-globose, six-valved at apex, hardly exceeding the calyx. 3 in. White. July. Scotland.

A. PEPLIOIDES (Peplis-like). Leaves ovate, acute, fleshy, approximated; flowers solitary, short-stalked; sepals oblong, acute, length of corolla. 3 in. White. June. Britain.

A. PINIFOLIA (Pine-leaved). Stems distorted, ascending, few-flowered, downy; leaves setaceous, stiff, stem ones straight; sepals obtuse, striated, villous, shorter than corolla. 6 in. White. July. Caucasus.

A. POLYGONOIDES (Knot-grass-like). Plant procumbent; leaves linear, obtuse, ciliated; peduncles in twos or threes, one-flowered, two bracts in the middle of each; sepals oblong-linear, obtuse, without nerves, hardly shorter than the corolla; capsules ovate, three-valved, hardly exceeding the calyx; seeds rather disk-shaped, black. 6 in. Red. July. Switzerland.

A. PUBESCENS (downy). Plant downy; stems spreading, branched, elongated; leaves ovate, acute, footstalks short; sepals acute, shorter than corolla. 6 in. White. July. Arelipelago.

A. RECURVA (recurved). Stems tufted, simple, usually three-flowered; leaves radical, crowded, awl-shaped, recurved, leaning rather to one side; sepals ovate-lanceolate, striated, like the peduncles covered with glandular hairs; petals ovate, longer than the sepals; capsules ovate, three-valved, shorter than calyx; seeds reniform, scarcely dotted. 3 in. White. July. Alps of Europe.

A. SAXATILIS (rock). Leaves awl-shaped; stems panicled; sepals ovate. 3 in. White. July. Germany.

A. SETACEA (bristly). Stems much branched; flowers panicled, fastigiate; leaves setaceous, in bundles, ciliated at the base, leaning to one side; sepals awl-shaped, acute, margins white and membranaceous, long as petals; capsules three-valved, rising above the calyx. 6 in. White. July. France.

A. STRICTA (upright). Plant many-stemmed, erect, glabrous; leaves awl-shaped-linear, erect, in axillary fascicles; panicles few-flowered; sepals oval-lanceolate; petals conspicuously striped, much longer than calyx. 6 in. White. July. N. America.

A. SUBULATA (awl-shaped). Stems panicled, few-flowered; leaves setaceous, stiff, mucronated, striated, lower ones in bundles; sepals lanceolate, much shorter than petals; capsules ovate, scarcely longer than the calyx. 3 in. White. June. Caucasus.

A. TETRAQUETRA (square-stemmed). Stems straight, downy; leaves ovate, keeled, recurved, edged, imbricated in four rows; flowers rather capitate; sepals stiff, acute, keeled, ciliated, nearly long as corolla; capsules ovate, truncate, six-valved, valves callose at apex; seeds kidney-shaped, very rough. 6 in. White. August. Pyrenees.

A. TRIFLORA (three-flowered). This is scarcely more than a variety of *A. grandiflora*, with stems glabrous, two to four-flowered, and leaves narrower and recurved. 6 in. White. July. S. of Europe.

A. ULLIGINOSA (marsh). Stem erect, branched from the base; branches naked; leaves linear, bluntish; peduncles twin, one-flowered, usually terminal, two bracts at base of each; sepals lanceolate, nerveless, slightly longer than ovate petals; seeds

kidney-shaped, orange-coloured. 3 in. White. July. Switzerland.

A. VERTICILLATA (whorled). Leaves awl-shaped, stiff, spinose, and, like the flowers, in whorls; peduncles four-flowered, rather capitate; sepals linear, awl-shaped, pungent; petals lanceolate. 6 in. White. July. Armeria.

This is a very extensive tribe of tiny plants, many of which would form a neat edging round other plants in beds. They are also peculiarly adapted for rockwork or naked sandbanks, forming compact dense plants. They require a dry, very sandy loam. Though not showy in colour, there is a neatness both in their habit and flowers that is exceedingly pleasing. Propagated by seeds and division of the plants.

Gather the seeds when ripe, and sow them immediately on the open border in sifted sandy soil, covering them as slightly as possible. Shade from bright sunshine, and shelter from violent heavy rains. They will quickly germinate. As soon as the seedlings can be handled pick them out three or four inches apart in a similar soil and situation, and there let them remain till spring; then plant them out where they are to grow.

Division.—Take up the plants in April, and divide them into moderate-sized patches; plant them immediately in freshened soil. Every piece should have roots to it, and then every one is sure to grow. If dry weather intervene, give a good watering every evening till natural showers fall.

T. APPLEBY.

(To be continued.)

THE SCIENCE OF GARDENING.

(Continued from page 336.)

IMMEDIATELY below the epidermis occurs the cellular integument (otherwise known as the *parenchyma* and *pulp*). It is a juicy substance; and, being the seat of colour, is analogous to the *rete mucosum* of man, which is red in the white, and black in the negro. The flesh of fruits is composed of it. Leaves are chiefly formed of a plate of it, inclosed by epidermis. In herbs, succulent plants, leaves and fruits, if it is destroyed, like the epidermis of the same, it remains unrestored; but in the case of trees and shrubs, it is regenerated after each removal. In leaves it is generally green; in flowers and fruits of every hue. It is always cellular, and evidently acts a part in the secretory system of plants.

The cellular tissue, says M. A. de Candolle, considered collectively, is a membranous tissue composed of a great number of cellules or cavities, closed on all sides. The froth of beer, or a piece of honeycomb, gives a rude but pretty accurate idea of it; each wall of water or wax represents the membrane, and the place of the air or the honey gives the idea of the cavity or cellules.

The walls which form the cells are of transparent membrane; these easily swell up by maceration in water, and rapidly shrivel and become obliterated by exposure to the air; so that their examination requires some care. These membranes are generally without colour when they are properly deprived of the sap stored up in the cellules.

The diameter of the cellules varies much; in general, the larger it is, the more the part to which it belongs has a loose texture, or the more rapidly it grows. Kieser calculates that the largest cellules—those of the Gourd, for instance, or of the Balsam, under a magnifying power of 130 times their diameter, are from five to six millimetres;* and that the diameter of the smallest, as, for example, those of the leaves of the Wallflower, is not, under the same magnifying power, more than one millimetre; so that there are 5100 cellules under a millimetre square of the natural size.

The cellules, being closed on all sides, can only receive the sap by means of the hygroscopicity of their walls. Those which are round suck up the juices which surround them, and elaborate them in their interior; and it is thus that, by a vital process, they form the feculent and mucilaginous substances, and the resinous matter which gives them their colour. We also see these different substances abound in all parts of plants which are essentially composed of round cellules; as the parenchyma of the external covering of leaves and fruits.—(De Candolle's *Vegetable Organography*.)

These cells are filled with *chromule*, or as some chemists term

* A millimetre is about equal to 1-26 th of an inch. It is the thousandth part of a metre, a French measure, which is equal to about thirty-nine inches English.

it, *chlorophyll*; which we shall consider fully when remarking upon the leaves of plants.

Under the cellular integument occurs the *bark*, which, in annual plants, or branches of one year's growth, consists of a single layer, scarcely distinguishable from the wood; in older stems and branches it is composed of as many layers as they are years of age. It is in the innermost of these, which is called the *liber*, that the vital returning circulation and secretions are carried on for the time being almost exclusively. These layers are concentric, or, as they are usually termed, *cortical layers*; they are thicker in feeble plants than in more vigorous plants of the same species; they are formed of waving, longitudinal fibres, the meshes of the net-work they thus constitute being filled with pulp. If the outer bark is destroyed, but the wound does not penetrate below the liber, the wound is healed up, otherwise the removed part is unregenerated. In some roots, although only annuals, the bark is composed entirely of liber, and is very thick, as in the Carrot and Parsnip, in which it is remarkably separated by a light-coloured annular mark, from the central or woody part. The liber is composed of various longitudinal tubes, in which the true sap of the individual descends after elaboration in the leaves; consequently here are found in the most concentrated state the substances that are the peculiar products of each plant, as the resin of the Fir, the bitter principle of the Cinchona, or Peruvian bark, &c.

It is called *liber*, the Latin for a book, because it was used for writing upon in ancient times before paper was invented. It is the finest and most delicate of the layers, being often reticulated most beautifully, as in the liber of *Daphne taylori*.

These facts relative to the functions of the bark at once suggest a warning against the injury inflicted by stopping the pores of the epidermis, on the stem and branches of a tree. Through those pores oxygen and water are absorbed, and carbonic acid is evolved, the same as in the leaves, which operations are all parts of the process of elaborating the sap. It is no trivial inspiration of oxygen; for in twenty-four hours, the branch of an Apple tree has been found to inhale five times its own volume.

If the fibres emitted by the Ivy, by which they cling to other trees for support, do not aid it in obtaining nourishment, yet by filling their respiratory pores, they are injurious, and should never be allowed to cling around serviceable trees.—J.

(To be continued.)

NEW OR RARE PLANTS.

CHEIROSTEMON PLATANOIDES (*Mexican Hand-plant*.)

Of this very curious and brilliantly-flowered tree, we cannot do better than quote the following from Sir W. Hooker's notes:—

"It was towards the latter part of the last century (about 1787), that a scientific expedition, under Sesse and Mocino, was sent by the Spanish Government to Mexico, then called New Spain, and where the attention of the botanists was attracted by a remarkable tree, venerated from time immemorial by the Indians on account of the peculiar structure of the large and very conspicuous flowers, which have their five stamens so arranged as to resemble the human hand, including the arm and wrist. It was believed to be a solitary tree, of which no other example existed, or could exist, in the world. Nor was it till about 1801, that a pupil of Professor Cervantes detected forests of the same tree in Guatemala, and near the city of that name. 'This tree had, consequently,' write Humboldt and Bonpland, who gave to this new genus the name of *Cheirostemon*, 'been transported by the Indians of Toluca from its native woods, and that, too, long before the conquest of America, since it is recorded in the writings of authors previous to the celebrated expedition to Mexico, under the Indian name *Macpalxochiquauhiti*, signifying *Hand-flower-tree*. It was, however, never botanically noticed till 1795, and then by Professor Cervantes. So great an object of curiosity was this with all the inhabitants of New Spain, that the flowers were gathered with avidity by the Indians even before their full expansion, and thus seeds were not allowed to ripen. Cuttings were transported to gardens in Mexico, by Sesse and Mocino; and at length their labours were rewarded by one, and only one, succeeding.'

"Humboldt and Bonpland brought seeds to Paris on their return from Mexico, but none of them germinated. More perfect seeds were afterwards readily obtained. Humboldt, in 1811, speaks of its being in collections at Paris and Montpellier; and

not long after, Mr. Lambert seems to have introduced it to English gardens. A fine plant had been long in cultivation at Kew, where it has attained a height of twenty-three feet, but never showed any disposition to flower. Happily Charles Dorrien, Esq., of Ashdean, has been more successful, and fine and perfect flowers were produced in his garden in the spring of 1859. The specimens arrived in the most perfect state possible, and were accompanied by the following notes:—'The tree is evergreen, but loses part of its leaves in winter, so the branches are bare in the lower parts. It seems to like a temperature of about 50° or 55° in winter. The first blossoms are (May 27th, 1859), gone off, but there are now four more expanding. The flowers secrete (in the nectaries at the base within) a quantity of liquid like sugar-and-water, tasting and smelling like toast-and-water. Each blossom continues about a fortnight in perfection before it begins to fade. The plant propagates easily by cuttings.'—(*Botanical Magazine*, t. 5135.)

RHIPSALIS SARMANTACEA (*Sarmentose Rhipsalis*.)

Native of South Brazil. Grows on the branches of trees, and, perhaps, on rocks. Flowers white.—(*Ibid.* t. 5136.)

MYOSOTIDIUM NOBILE (*Antarctic Forget-me-not*.)

This beautiful Boragineous plant is a native of Chatlam Islands, near New Zealand. Blooms in March and April. Flowers blue in the centre, with white edges.—(*Ibid.* t. 5137.)

AERIDES WIGHTIANUM (*Dr. Wight's Aërides*.)

A native of Ceylon and other parts of India. Blooms in June; flowers yellow, but "its chief beauty arises from the varied colour of the labellum when closely examined."—(*Ibid.* t. 5138.)

ARECA SAPIDA (*Southern Areca or Betel Nut*.)

Native of the northern and middle islands of New Zealand. This Palm flowers here in winter.—(*Ibid.* t. 5139.)

NOTES FROM PARIS.

THE French, in general, are fond of showing off—of making a fine outward display in everything. Yet there is, at least, one exception to this rule, and which is the more remarkable, that in England generally, and round London in particular, a certain amount of outward show is considered necessary by those engaged in the same pursuits. Every nurseryman with us must make a respectable appearance from the public road. His borders near the gate are planted with the most showy flowers and ornamental shrubs. Everything, in short, is done to attract the eye of those who pass along, and magnify the extent or beauty of the place. The very reverse of this is the invariable rule in Paris, and people would never suppose, in passing along the street that, perhaps, they were just within a few paces of some beautiful garden. All the nurseries I have seen here have gates and walls more befitting a prison or a fortress, and through which no light is permitted to penetrate. I have, indeed, on one or two occasions, had no little difficulty in finding them out, or effecting an entrance.

At the opening up of the line of the new Boulevard de Prince Eugène, people were astonished to find that nearly the whole district had been occupied by nurserymen and market-gardeners. But it is to be observed, that nurseries and market gardens here are all on a small scale; but very few of them exceed an acre in extent, and many of them are much less.

A few days ago in passing along the Rue de Charonne, which is intersected by the Boulevard just named. I noticed by the merest chance the old weather-beaten sign-board of *Thibaut and Kételeer*, at the top of a high, gloomy wall, and ponderous wooden gate as usual. I was familiar enough with the name of this firm, and I resolved, though I had but little time to spare, not to let the opportunity slip of paying it a visit for the first time. I may just say I was politely received, and made very welcome to return whenever I pleased, and now I shall give you the result of my inspection.

The ground is but little more than half an acre, but it is quite a *bijou* in neatness and beauty. I did not notice the number of houses or their dimensions, but I think there may be some ten or twelve constructed parallel with one another, but all separated by about five feet, and this space is filled with something like tan or other material nearly up to the glass. They have all doors at both ends. But with the exception of the

propagating-house and another, they all communicate at one end with another house constructed at right angles to them, and by this arrangement they may be all inspected without going into the open air.

In the stove I found among other good things a fine collection of Begonias. Several of these are quite new, and one or two have not yet been named. In my notes of the horticultural exhibition of May last I mentioned one of these new varieties which is called *Imperator*, and which has been raised, as I am now informed, from seed. It is a large, robust plant, in the way of *Begonia rex*. The leaves are about a foot in diameter, the veins dull green, the spaces between them light grey; near the margin they are green, tinted and spotted with white and red. The backs of the leaves, as well as the long thick stalks, are covered with deep red hairs. Another robust kind, called *Leopoldii*, is of this year's introduction. It was received from M. Verschaffelt, of Ghent. The next is called *argentea*. It was received from M. Linden, of Brussels; and, as its name denotes, its leaves are a good deal spotted and marked with white, or light grey, on the surface, but they are smaller than in the preceding species. *Begonia Victoria* is a pretty variety, with leaves about ten inches across, green above and red below. *Begonia amabilis* has leaves about six inches long, and the colour is somewhat like that of *B. Victoria*.

In the same house was a pretty *Achimenes* called *Georgiana*, of a rich carmine colour, with a mixture of scarlet and yellow in the throat. It is of a tall, robust habit, and must make a fine showy plant when well flowered. There is a variety of it called *Georgiana discolor*, which is distinguished by its leaves being of a deep-red colour underneath.

In this house there were a great many fine plants, which I shall notice more particularly at some future time.

Messrs. Thibaut and Kételeer have a *Lycopodium*, the most singular of all the exotic species I have seen anywhere. It is called *L. dichotomum*, and, as I learn, was received from Java, last year. Their plant, for they have but one, is about ten inches high, and at first sight it might be taken for some young *Araucaria*. It is of a clear light-green colour. As there have been English collectors in Java, this remarkable species may, perhaps, be known among the nurserymen of London.

The finest, or I might say the only collection of Orchids shown at the Paris Exhibition, in the month of May, was from this establishment, in which these choice plants are well grown, and on a larger scale than in any other nursery I have yet seen here. At the present season, however, there is, of course, but little display. But the following were in flower at the time of my visit:—*Saccolabium Blumei major*; *Vanda Roxburghii*, *Vanda tricolor*, *Vanda suavis*, two large spikes on a magnificent plant about four feet in height; *Aërides suavisimum*, a beautifully-grown *Dendrobium densiflorum*, four feet in diameter, had ten large spikes; *Phanopsis grandiflora*, two spikes well flowered; *Burlingtonia candida*, *Miltonia bicolor*, *Cattleya Harrisonii*, *Echites bicolor*, and several plants of *Cypripedium* were all more or less in bloom. Among the latter was a new species called *C. Fairieanum*, said to have been received from the Messrs. Veitch. To these I may add *Streptocarpus polyanthus*, remarkable for its singular habit of growth, as the flower-stalk rises directly from a broad flat leaf.

What is called the Palm-house is well filled with miscellaneous plants, such as—*Strelitzia regina*, *Cycas revolula*, *Musa Caven-dishii*, *Strelitzia angusta*, Fan Palms, tree Ferns, *Pandanus odoratissimus*, *P. graminifolius*, *Anthurium pinnatifidum*, and many similar kinds. In this house was a large plant of *Cissus discolor*, remarkable for its exquisitely coloured foliage. It is a climbing plant that should be in every collection. Some of the tree Ferns were large and handsome; and a fine Fan Palm, about eight feet high, was in flower. *Pandanus odoratissimus* is very common here; but when allowed to get large it is very difficult to manage, as its long spreading leaves are thickly studded with strong prickles. The smaller species, *graminifolius*, is less objectionable in this respect, and when well grown is graceful enough. Messrs. Thibaut and Kételeer have the best example of it I have yet seen. *Anthurium pinnatifidum* has immense pinnatifid leaves, and long, strong stalks, fully an inch thick. It is a singular plant, but wants a great deal of room. The best of the tree Ferns were—*Cyathea australis*, *C. dealbata*, and *C. medullaris*, about six feet high, and their fronds spreading out nicely all round.

I cannot at present do justice to some beautiful Fuchsias, and other sorts of merit, nor to the collections of Coniferae and orna-

mental shrubs in the open ground, for I could only glance at them in passing; but I hope to have an opportunity of noticing them fully before long.—K.

THE IMPORTANCE OF A GOOD SUPPLY OF ICE IN LARGE ESTABLISHMENTS.

THE value of a good supply of ice during the heat of such a summer as that we have just passed can hardly be overrated. Since the introduction of the Wenham Lake ice to this country, many hundreds of persons who never dreamed of ice before have become familiar with its use, and, by force of habit, it has become necessary to their comfort. In all towns it seems to be a matter of little import (where they have a railway-station at hand) to collect our home ice, with all the dirt and *débris* which are its usual concomitants, seeing with what ease, rapidity, and certainty the transmissions of this substance can be made, and how clear and beautiful it is when we get it.

But we think it worth while in cases of great consumption (and in these cases only) to collect ice, and venture a few suggestions upon doing so; whilst, for all small consumptions, we think the use of the Lake ice decidedly superior in quality and economy.

During the hottest period of the season we have at Nuneham a series of distinguished parties, to whose enjoyment the ice-house contributes very largely, not only in supplying ice for butter, iced wine, water, and ices, but it is of the first importance to the cook in enabling him to preserve venison and other meats, fish, &c. Last year we were unfortunate enough to clean out our lake, and it did not fill again sufficiently to afford us ice as usual. We have, therefore, had to purchase our ice in London; and Mr. Harcourt has just informed me that it has cost him a guinea per diem.

Whatever may be the situation of the lake from which it is proposed to get ice, it is important that it be not much overshadowed by trees; the branches of which arrest radiation and prevent the surface from freezing, and the leaves, which, falling in the water, become decayed and of a black colour—very nasty among the ice, which they assist in decomposing. The banks should be level and sloped easily, the more readily to admit of getting out the ice. All weeds should be cut in the autumn before the approach of frost; because all extraneous matters are detrimental to the keeping of the ice.

The subject of the ice-house has been so often comprehensively treated of in gardening books, that we fear it can be of little interest to our readers. Suffice it to say, therefore, that the thorough drainage is most important; and without this being perfect no house can be expected, or will be found, to keep ice well.

The breaking up of the ice is one of the most important points of the whole process of storing ice. It should be pounded almost to a powder, and thoroughly rammed into its place, so as to leave it in the best possible state for becoming a solid mass; into which, with such precautions, it will soon form. The less broken and rough it is, the more crevices will be in it; each of them full of air, which, from its temperature being higher, must assist in wasting the mass of ice. Let me here advise all parties to have plenty of breakers and rammers, and not to have too many carts and horses, that, as the work progresses, it may be well and thoroughly done.

After the house is filled it is usually closed up with straw in its passages, so as to exclude the air as much as possible. It is then left till wanted for use.

The Americans do not close their houses, but have a small lid in the door, and one on the opposite side, which they open at night and close in the morning. They say that it prevents that accumulation of damp which materially assists in wasting the ice. Lord Jersey, when I lived with him, gave me a plan of one of their houses made by a friend of his, which he said answered admirably.

I will now offer a few remarks upon the subject of filling an ice-house.

It is usual for persons to have small bundles of straw made to pack round the outsides of the wall, between it and the ice. This I have seen answer very well; but I have done much better by leaving them out, and filling the whole space with well-consolidated ice. My theory being that we cannot put in too much ice if the house is built with hollow walls, as good ice-houses are. If the house had no space between the walls, the introduction of

straw would be justifiable, certainly. But supposing the ice to commence wasting in zones, each of which is less and less, width of diameter seems of great importance; and it is better to have the incipient wasting commence at a long radius from the centre than at a short one. The same amount of waste in one case leaving but a small central piece of ice; while in the other a block of considerable diameter remains for use.

A good deal has been done in constructing rustic ice-houses; but they are, perhaps, but very bad samples of sound economy—always tumbling down in a state of rotteness, bit by bit. Whoever erects them is doomed to pay too much for his whistle, and had far better erect at once a good brick-house.

A great deal of ice is now stacked in various localities, and the practice answers well. At the Duke of Bedford's, at Woburn, it is largely done with great success; but the greatest affair of the kind which I have ever seen was at Berkeley Castle a few years ago. There they had so large a quantity as two hundred cart-loads in one heap, placed upon sloping flagstones, which answered their purpose in every way.

Of these modes of keeping ice it is difficult to say which is the best; but we may say that all are good when well done. I think where having a supply of ice involved making an expensive house, it might be quite right to try the formation of stacks, which, as I have already said, answer admirably.

When an ice-well is filled, it is usual to direct that the straw, which I omit, should be placed round the sides, for the purpose of giving passage to any moisture; but the ice will immediately thaw from the wall, and form a passage for the moisture, without having the damp straw falling down and lying upon the ice to melt it, which is in my opinion very objectionable.

I have often wondered that one does not see more frequently an ice-cellar attached to country houses, remembering how useful such places are for various purposes of domestic economy. If these things were well considered in planning a house, how much of after expense and trouble would be saved by placing the ice-house close to the mansion, and not sending a man daily to carry two buckets of ice to the house. HENRY BAILEY, *Nuneham*.

THE BLOSSOMING PRINCIPLE; HOW VARIOUS!

It is a well-known fact in the gardening world that we possess the power of causing certain plants or trees to blossom at periods, when, uncontrolled, they might not do so. It is equally certain that many subjects are quite uncontrollable in this respect. It must be admitted on all sides that the power of inducing fructiferous or blossoming habits is a most desirable object, and it may be worth while to look over the subject. Some plants and trees are what may be called periodical in their blossoming, others bloom as it were by starts; but still all these cases are, as it were, so overlaid with exceptions that generalisation is almost impossible. However, by quoting a few illustrations of habits, we shall, doubtless, stumble on facts.

Most of our fruits we know are tolerably decided in habit—such as the Apple, Pear, Plum, Apricot, Peach, &c. Nevertheless, it is no uncommon thing to find a stray Apple blossom at the end of the autumn. Then, again, our bush fruits are in the main equally fixed in their habits; the Gooseberry and Currant decidedly so. But the Raspberry is more wayward as to blossoming; and it is evident, from what is known of this singular bush, that we need not deem it an impossibility to eat Raspberries three-parts of the year.

When we look into our herbaceous tribes we shall find some singularly habited plants in this respect. The Chrysanthemum, for instance—who can produce a show of these in June or July? But we come to the cool autumn months, and the difficulty speedily vanishes. The *Dielytra spectabilis* is somewhat odd in its movements. I took some old and strong roots up last October to pot for what is commonly called forcing. About one-half were potted, and the other, cared little for, were left at the compost heap; a little soil being strewed over them, which was washed nearly away by the first storm, and the plants lay bare to the frost and weather for

several weeks. The roots seemed to preserve their vitality unimpaired; and finally, in the middle of December, the poor unfortunates were potted. They were placed on the damp cinder floor of the Camellia-house, and in a short period made the finest blooming plants we had. But this plant will not bear forcing in its full signification. If it can get its annual rest betimes, and that of a decided character, it is readily excited in any mild greenhouse at a temperature of 35° to 50°, especially if on the damp ground or floor. And this singular affair reminds me of a strange observation I once heard a knowing old gentleman—a worker in metals—make concerning Rhubarb.

It is, doubtless, well known to the readers of THE COTTAGE GARDENER that hundreds of the suburban about great manufacturing towns are in possession of a great many useful practical facts connected with their little gardens, albeit not professors. My man of metal was from Stockport, and he assured me that the best way to propagate and encourage choice Rhubarb was to take up the roots in November, and throw them on the surface of the soil, uncovered, until February. This appeared strange doctrine to me; but this I do know, that some young Rhubarb plants were trenched out of a plot here last autumn, and lay on the surface all the winter without suffering the least damage. We thought we had too many, but in the spring we had recourse to the rejected for enough for a row; and they have grown as well as those planted carefully in November. This may seem a little wide of my text, but I want to put in all I can to set other minds at work. By-and-by we shall get a master mind that will string these loose and random beads.

We have lately had questions raised as to the habits of the *Delphinium formosum*, and I am glad to see them in these pages; for we really desire further knowledge concerning it. This spring, about the end of April, I topped or pinched a few plants in the store-bed at various heights, in order to see if they would continue long in blossom, and whether it would be satisfactory as a dwarfing process. I am sorry to say I cannot report so well of this affair as I could wish; they did blossom, but they were stray flowers, and by no means expressing the glorious character of *D. formosum* in all its pride. Still I do not think it invincible; probably treated as a biennial, and sown at special periods, something may be done. Had this fine fellow been of the habit of a Verbena, and a perpetual bloomer, he would have thrashed all the blues out of the flower garden.

But to return to the kitchen garden. Here we may find cases of Cauliflowers buttoning, Celery and Lettuce bolting, with other matters. Now this condition is probably the natural one: it is simply our high culture and selection of condition which arrest this tendency to bolt or run to blossom. But in this case, were it our object to produce this blossoming condition, we feel quite at home in this respect. These subjects, however, are so susceptible, that although there is to be seen an identity as to the flowering habit between these and fruit trees, yet we can but slenderly use the same appliances.

There are, to be sure, several ways of operating to this end. But we may fairly resolve them into two; operating by the root, and by the foliage. By the root, we can cut off the supplies at will, with many things, especially plants in pots. We can withhold water, and we can even cut away a portion of the fibres and roots. Now with all those ordinary plants which are commonly designated herbaceous, we well know that the organisation of a fine blossom-bud for the ensuing year depends entirely on the healthy development and action of the foliage of the present year. Thus the character and value of Asparagus in the ensuing season depend on the encouragement given to the foliage of the present year. So that if any novice in such matters were to wish to know how many stalks he might cut from any given root in the ensuing spring, he has only to count the number

of stems in full growth, and as thick as a man's finger, and multiply them by about five, and that will inform him.

Strawberries are somewhat anomalous in their movements, at least some kinds; but much may be done to promote the blooming principle by a proper course of handling. How can any man expect a strong and hearty bloom in the ensuing year, who allows thousands of runners to choke the plants during the present summer and autumn? I remember, about thirty years since, a question was raised as to whether the runners were a source of strength to the mother plant or not. Really I almost wonder how longheads could assume so much gravity over what appears a very simple question. Did the runners never root, and never organise blossom-buds for themselves, the case would be widely different: they might then be a source of strength to the parent plant. But it is evident from the first, that they want to set up in business for themselves, and that the parent has to find the needful for a commencement. Strawberries may be retarded and forced. The latter is, as it were, a matter of course; but the retardation is an affair which must be settled by a thorough knowledge of the formation of blossom-buds.

The Raspberry is very manageable with regard to succession. I do not mean the old double-bearing kind, but our Fastolf's and those of the newer kinds. I have found by experience, that the retarding of these, or rather, perhaps, the promoting a succession, may be effected just in the same way as in certain Roses. Do not be too keen with your winter or early spring pruning; leave them some wood to play with; suffer this wood to push nearly half an inch long, and then prune back in a bold manner, cutting away all first growth. By such means I have a succession of Raspberries until September of the ordinary kinds. But be it remembered, both as to the Roses and the Raspberries, that there is a loss of energy consequent on such liberties: so that he who will do such things must have a liberal hand for manures.

It appears very plain in the abstract, that abundance of light, and that considered in the ratio it bears to the absorbing powers—in other words, activity of root—has in all cases most to do with the blossoming principle. We do know that there must be a period expended on the organisation of the bud. This principle well carried out, we may in many things bid defiance to seasons; and to use a homely saying, turn night into day—or, in other words, we can both force and retard many things, which processes much extend the sphere of their usefulness.

R. ERRINGTON.

TREES GROWING IN OR OVERSHADOWING A GARDEN.

THERE are few things on which the owners of property look with more respect than old trees. Like old friends, they cannot well be discarded without a just and urgent reason: and even then the act of condemnation is often attended by such misgivings, that it is not until the object has been fully attained for which the old tree was taken down, that regrets for its absence give place to a feeling of rejoicing at the beneficial change effected. This very justifiable attachment to old trees may, however, be carried to excess. Many important improvements are effectually checked by "a tree in the way," which it would be almost treason to destroy: while, at the same time, should any uncontrollable agent, as a high wind or stroke of lightning, do the act of destruction, the greatest friend of the unfortunate tree will hardly express a regret that it is gone.

Now, there is something certainly wrong in this; and the veneration in which the tree is held is certainly much beyond its merits when it obstructs some particular view, shades some important border or building, or prevents the effectual accomplishment of some interesting alteration. Many windows are deprived of half their usefulness by large trees growing too close to them: and it is also a certain fact that many chimnies are

made to smoke the rooms from a like cause. Now, it would be wrong to condemn that feeling which venerates old or fine trees; but when such stand in the way of an acknowledged improvement, the proper question to ask is this, If the tree in question were not there, would you wish to have it in that place?

If the answer be in the negative, then cut it down immediately, for it cannot be waited. But it is not my purpose here to find fault with the propensity we mostly all have of clinging to something or other, but to complain of the practice of growing large fruit trees in kitchen gardens; as Apple, Pear, and Cherry trees are often found high enough to require a thirty or forty-round ladder against them to gather the fruit. These towering objects are much more hurtful in the kitchen garden than is generally allowed; as their roots, in the good cultivated mould of a kitchen garden, run a great distance, and the crops underneath are very indifferent in quality. As most gardens are more or less frequented by the family and their visitors, good useful crops are certainly much more interesting than poor ones, with an indifferent crop, perhaps, of Apples or Pears on the trees which overhang them. Besides which, it seldom happens that there is a good crop on trees planted so very widely apart, that it is much better to have all such trees growing in one place, and only so near each other as to occupy the ground without crowding. The ground on which such trees are growing might either be in tillage or in grass. If the former, some small crops, as Currants or Gooseberries, may be grown at distances of six feet apart; but the digging amongst these must be very shallow. In Kent there are hundreds of acres of orchards of this kind; and the same may, with equal advantage, be grown elsewhere. The object here advised is to relieve the kitchen garden of those high and overshadowing trees which injure and disfigure so many plots of vegetable ground.

Now, in addition to the evil done by trees inside a garden, those outside it are often much too near it. High trees on the south side of a garden overshadow it very much in winter; and fruit trees against walls so deprived of the sun in winter never do well. Trees are also liable to send their roots long distances foraging; and the more robust kinds quickly devour the fat of the land. I have seen a root upwards of fifty feet long, and nearly as thick at one end as the other, where it had got into a line of good material, and speedily found its way to the furthest end of it. Trees on lawns will also search out flower-beds, and occupy their enriched contents, with astonishing rapidity, to the detriment of the proper tenants there: while peat, or bog-earth, of prepared American plant-borders, is especially liable to invasion. It is, therefore, advisable in all these cases to keep a watchful eye on the intruder; and when the offending tree cannot be taken away, cut back its roots within its own territory. Supposing it to have usurped a flower-bed in the lawn, merely cutting its roots at the sides of the bed and renovating the soil would only be to invite it to another feast, which, if in the growing season, it would swallow up all in a very short time. But cut back its roots by making a ditch about two feet or so from the edges of the bed, and filling that ditch with something distasteful to it. Chalk rammed in hard answers pretty well; or, if it must be earth, let it be of the poorest kind. Some run to the expense of a brick wall; but I do not advocate that, as it is not always an effectual barrier. I once knew an excellent garden wall, with Peach and other trees on the south side, and on the other side timber trees of various kinds were growing close up to it: and whether the latter smelled the better material their more delicate brethren had to grow in on the south side, or by the poverty of their own side felt themselves justified in the invasion, certain it is that in two years the whole of the twelve-feet-wide border on which the Peach and other trees were growing was filled with Ash, Elm, and Chestnut roots. It is needless to say the Peach trees suffered sadly, the evil not being discovered until much mischief had been done. It is, therefore, advisable for all who have timber trees growing in the neighbourhood of their cultivated grounds to look well to them, that they do not usurp more than their share of space. It is also advisable for all who plant fruit trees in gardens to consider whether they are likely to become standards or not, and, if any danger of the latter, try and plant them somewhere else; for it not unfrequently happens that a small tree is put in under the plea that "it can do no harm," which, growing up into, perhaps, a fine one, is then too good to cut down; and damage to the crops and irregularity in appearance are the results.

In condemning large standard trees in gardens, I by no means find fault with the trellis-trained ones which form so important a

feature in some gardens. On the contrary, where the roots of a tree can be made to occupy the bottom of a walk, or other piece of ground not under cultivation, and its top likewise not being detrimental to anything near it—the tree then is not only excusable, but highly recommendable. Tunnel-shaped trellises have become fashionable of late: but where a large quantity of fruit has to be grown with the least possible trouble, be assured that large full-grown trees are the best to produce this. Training in fantastic forms may please the eye; but the larger fruits, as Apples, Pears, Plums, Cherries, and the like, bear the most plentiful crops when not too much cut. This, however, is foreign to the subject in hand, excepting so far as to give additional reasons for not having too many fruit trees (trained or otherwise) in the kitchen garden; and be sure to keep the more voracious timber trees at a safe distance. Shelter from cold winds is doubtless often urged as a reason for having them so near; and when the belt in the rear of these is narrow and thin, it is not prudent to cut much away without due consideration: but where there is plenty to work upon, let the axe and mattock be freely used, and it will be found that trees at fifty yards' distance from a wall shelter it nearly as much as when only at fifteen yards, while their shade is less hurtful. The same may be said of buildings and other towering objects.

J. ROBSON.

NOTES ON FERNS.

CERATODACTYLIS OSMUDIODES. J. Sm. (Synonyme—*Llavea cordifolia*, Lagasca). Fronds glaucous, tri-pinnate, the lower part sterile, the upper and fertile part very distinct. Sterile pinnules rhomboidal-ovate, margin somewhat thickened, serrated. Veins simple or forked, the veinlets extending a short distance beyond the point of the serrature, so as to appear like a short horny point. The fertile pinnules are rolled up, so as to cover the sori; the *sporangia* spring from the whole length of the veinlets in these contracted pinnules. Stipes covered with long, white, almost-transparent, chaffy scales, passing into long, white, hairs on the upper part.

This truly beautiful plant is a native of Mexico, and was introduced to our gardens about two years ago by M. Linden, the enterprising director of the Botanic Garden of Brussels, to whom we are indebted for so many of our best new plants. The beautiful glaucous colour of the fronds and the graceful habit make this plant decidedly distinct from any other Fern, and a valuable addition to our collections. The fronds are said to attain the height of more than three feet; but no plant I have yet seen has been more than eighteen inches high. The name means "horny fingered," and refers to the appearance of the fertile portions. It appears to come freely from spores.

ASPLENIUM FLACIDUM. Forst. (Synonyme—*Darea odontites*, Willd.; *Canopteris flaccida*, Thunb.) Fronds two and a half to three feet long, drooping, pale green, coriaceous, lanceolate, bi-pinnate. Pinnules almost linear, obtuse. Veins obscure—that is, imbedded in the substance of the frond. One vein in each pinnule, extending nearly to the apex and bearing one sorus to each pinnule, even to the lowest segments of the frond. Sorus covered by a linear indusium attached to the vein by the lower side, and which is forced open by the growth of the sporangia. Stipes rather thick, slightly channelled on the upper side, and having a few brown scales towards the base. The whole frond very viviparous, producing young plants plentifully upon its upper surface (not, as is usual in other plants, in the axils of the pinnules or serratures). The young plants appear first as minute buds, which in the course of a short time throw out two or three small fronds, and as soon as these attain a few inches in length they drop off and commence a separate existence.

This well-known Fern is one of the best of the whole family for cultivation in a basket, its long flaccid fronds drooping gracefully on all sides; it also possesses another very advantageous quality—being somewhat of a succulent and leathery texture, it is well adapted for cultivation in the dry air of a living-room, in which situation it will thrive for a long time if carefully watered. It grows wild in many places in the southern hemisphere, and, therefore, requires only protection from the frost. Dr. Hooker, in his "Flora of New Zealand," says it is the most variable Fern in the island, and that many pages might be devoted to a description of the various forms it assumes. This may account for the number of synonyms in which it rejoices—some ten or a dozen in number. It is often grown under the name of *A. odontites*; but at Wentworth and elsewhere that name is

applied to a much smaller-growing variety, with narrower segments, and which is never viviparous. It may easily be increased from spores; but the quickest and best way is to lay one of its fronds on the surface of moist soil, without detaching it from the parent plant, when the young ones already formed will quickly develop themselves.

ACROSTICHUM AUREUM. Lin. (Synonyme—*A. inaequale*, Willd.) Fronds three to seven feet long, pinnate, glabrous, coriaceous, and of a pale green colour. Pinnæ alternate, lanceolate, entire, with the margin somewhat thickened; the lower ones wedge-shaped at the base, and petiolated; the upper ones adnate or slightly decurrent. Each pinnæ has a prominent costa or midrib, but the other veins are of uniform thickness and beautifully reticulated, making a complete network. Sometimes the upper pinnæ are fertile, at others the entire frond; in this case they are more erect than the sterile fronds and the pinnæ narrower. The sori amorphous, densely covering with their bright brown sporangia the whole underside of the pinnæ. The fronds are produced from the apex of a short, thick, erect caudex; the roots are thick and succulent, produced freely at the base of the stipes.

This, which is one of the noblest Ferns we possess, is a native of the swamps of all the tropical and sub-tropical parts of the world. Slightly varying in form it is found in America, in the West Indian and Polynesian Islands, in South Africa, in Ceylon, and India. The most suitable place for its cultivation is a tropical aquarium; with its pot standing in the water in which the Victoria is grown, it makes as splendid an object as can possibly be conceived. With its fertile brown fronds, six feet high, standing nearly erect in the centre, and the shorter, delicate green, sterile ones gracefully drooping around, it makes a specimen which once seen can never be forgotten. In winter it should be kept somewhat drier. It ought to be renewed from spores occasionally, as it may otherwise become exhausted like *Hemidictum* and other strong-growing species. The plant lately introduced from the Belgian nurseries under the name of *Acrostichum inaequale* appears to differ but little, if at all, from this one, and is, therefore, scarcely worth growing in the same collection.—KARL.

QUERIES AND ANSWERS.

COLOUR OF YOUNG GOLD FISH—PROPAGATING THE PAMPAS GRASS—PLANTS HARDY IN IRELAND.

"I have a fountain in my pleasure ground, in the basin, four feet deep, in which three years ago were put a dozen gold and silver fish. They have produced young each year, and we have some now nearly as large as the parents, with others not larger than pinkeens; but, large or small, they are all nearly black! No other fish or fish-spawn could have access to it. The water is supplied from a well and through a pipe nearly 200 feet long. Can it be the coldness or hardness of the water which prevents the young ones assuming the proper colour? The old seem strong and healthy.

"I have a very fine plant of the Pampas Grass, from which I want to get some others. My gardener has tried and failed the last two years.

"You like to hear what greenhouse or half-hardy plants live over the winter in various places. Here, four miles south of Dublin, there have lived out, wholly unprotected the last three years, *Eucomis punctata*; all the best Fuchsias, whether red or white; *Geraniums Punch*, *Fair Helen* and *Rose-scented*; *Orange* and *Cantua dependens*, sheltered with branches of Fir and a hay-band."—CARRIE CATHOL.

[The water has nothing to do with the dark colour of the young gold fish. They are always dark-coloured at first, and the golden colour comes over them at ages varying with the constitution of the fish.

We have consulted Mr. A. Henderson, of the Pine Apple Place Nursery, upon the propagation of the *Pampas Grass*, and his reply is as follows:—"Young plants of the *Pampas Grass* are far preferable for division to the old plants—such as two-year seedlings rather than those of age, planted out in the open air and flowering. Though, if care be taken, the larger plants may be divided just now by taking off the side-branches, with a few roots attached; these to be potted and kept in a cool frame during the winter. Success is then without doubt. Young

plants we never hesitate about, but divide them when we want them; they root freely.”]

PROPAGATING SEEDLING PHLOXES.

“Having some seedling Phloxes which are now in flower, and a few of them very good and distinct, I shall be much obliged for some information if I can propagate them from the flower-stems when they have done flowering, and what length I should cut the pieces of the flower-stems. Also, if the cuttings should be covered with a bell or hand glass?”—M. F.

[Seedling Phloxes like yours will not do to be propagated from the flowering-stalks. In the first place, it is very difficult to strike them that way; and when first-rate gardeners are so pushed for cuttings as to be obliged to strike from “flowering wood,” plants from such cuttings are not worth one rap the dozen, except for make-believe plants to sell to people who run after cheap plants. Cut your plants down at once; and if they are in pots, half shake them out of the balls, and plant them in good stuff in a warm corner, and, if we have a mild ending to this autumn, you will have whole bunches of the best cuttings in the world springing up from the collar of each plant by New Year's day. But on the appearance of the first sharp frost, mulch your row, or bed, or plot, of seedlings with very nice something, such as sifted leaf mould; then the young shoots will root in that mulching before the spring is much advanced; and in April you will divide off as many suckers as you are wanting to make cuttings now. You will plant these in threes or fives; and next August one of such patches will bloom six times better than six patches of puny things struck as you now propose, and also come sooner into bloom.]

GROWING BULBS FOR SALE.

“Will you name the best sorts of Tulips, Crocuses, and other early-flowering bulbs suitable for growing in small pots for sale? Would the *Van Thols* do singly in 60-pots? Last year I had single *Van Thols*, and thought them good for nothing. Which are best?”—J. ALLEN.

[The following will answer your purpose; but 60-pots are too small for any bulbs, for you ought to put three or five of the smaller sort, such as Crocuses, Snowdrops, and early Tulips, in each pot, or you will have but a poor show of flowers for market purposes. In the season go into Covent Garden by five o'clock in the morning, and you will see and learn more in half an hour of what is done in early-flowering bulbs, than you could read of in a week in any books. However, as a guide to you, we will state a few particulars of culture that may be useful to you, and probably many others of our readers.

Pots.—The best size of pots for forcing the smaller bulbs—namely, Crocuses, Jonquils, Snowdrops, Turban Ranunculuses, and Tulips, are what are called round London small 48's.

For Cyclamens (large bulbs), Hyacinths, and Narcissuses, large 48's, or small 32's are necessary.

The first lot, small bulbs, should have three or five bulbs in each pot. The second one, two, or at the farthest three bulbs in each pot. Growers for Covent Garden, and other London markets, use one bulb for the earliest-forced lot, and two or three bulbs for the second bloom. When three bulbs are put into a pot, the larger size 32's are used. Some for Hyacinths and Narcissus have pots made on purpose. For one bulb, four inches wide and seven inches deep. For two or three bulbs, six inches diameter and nine inches deep. These pots are nearly as wide at the bottom as at the top. There are two advantages in using these pots; the first is, there is more room for the roots to run down deep; the second is, the pots take up less room, and, consequently, a greater number can be placed in a given space—a matter of some moment in forcing, especially to those who, like our correspondent, grow for sale.

Soil.—The best compost for all kinds of bulbs usually forced consists of light sandy loam, leaf mould, and well decomposed cowdung, in equal parts, to which should be added about one-eighth of silver sand; or good, sweet, pure river sand, well washed, would answer where silver sand is too expensive. Keep these earths in separate heaps, and mix them when required for use, observing to use the compost in a neither wet nor dry state.

Time of Planting.—For very early-blooming, no time should be lost now in procuring the bulbs and potting them. For later blooming, they may be potted any time between this, the 1st of September, to the end of November. But a general rule

is, to pot all as soon as the bulbs can be procured, and bring them in batches into heat as the season advances, and the time the blooms may be required for a succession. As soon as the potting is finished, choose a square plot of ground in an open situation that will contain the stock of potted bulbs. Make it level, and scatter a thin layer of sharp ashes on it. Roli these firm, and then place a line on each side of a bed on this platform of ashes. If as many loose bricks are handy, place a row flat and lengthwise close to the lines on each side of the bed. Then commence at one end, placing the pots of bulbs in a row across the bed, and then another row, and so on till all are placed, taking care to keep each kind together, and place a tall label at the end, and facing that kind. Then cover the bed and pots with coalashes, rotten tan or sand, making it rather higher in the centre; and here let them remain till taken in for forcing. The grand object of this arrangement is to give time for the bulbs to make roots previous to shoots of leaves and flowers. To have blooms at Christmas it will be necessary to remove a few pots into heat by the end of this month (September). By heat I mean a gentle temperature at first of from 45° to 50°, and afterwards to a heat of from 55° to 60°, and this gradual increase of heat is desirable to attend to the last batch of bulbs intended for forcing, either for sale or ornamentation.

List of bulbs for forcing in pots for sale or ornament:—

CROCUSES.—Yellow, Blue, White, Purple, and Variegated.

SNOWDROPS.—Single and Double.

HYACINTHS.—*Double*: red *Waterloo*; blue *A-la-Mode*; white *Anna Maria*. *Single*: red *l'Ami du Cœur*; blue *Emilius*; white *Grand Vainqueur*.

NARCISSUS.—White, with citron cup, *Grand Monarque*; yellow, with orange cup, *Soliel d'Or*.

TULIPS.—*Single*: scarlet *Duc Van Thol*; yellow *Duc Van Thol*; *Pottebakker*, white; *Prince*, yellow; *Waterloo*, scarlet. *Double*: *Buonaparte*, dark crimson; *La Candeur*, white *Tourne-soil*, red and yellow.

TURBAN RANUNCULUSES.—Dark Crimson, Scarlet, *Seraphique citron*.

CYCLAMEN.—*Coum*, *Persicum*, and *Europæum*.

JONQUILS.—Double, Single, and Sweet-scented.

I have just received a most excellent catalogue of bulbs from Messrs. James Carter and Co., and am much indebted to it for the foregoing information. Our correspondent, and, indeed, any of our readers who wish to grow bulbs, would find much information as to classing, names, culture, price, &c., if they would send to that firm for their catalogue, which is sent free to all parts.]—T. APPLEBY.

CARR HEAD:

THE SEAT OF W. B. WAINMAN, ESQ.

THIS beautiful but retired place is situated in the romantic district of Yorkshire, yeleft Craven, not far from the ancient town of Skipton, near the upper part of Airedale. The nearest station on the Midland line of railway is the pretty village of Kildwick, distant from Carr Head about three miles.

On the 17th of August last I attended, as Judge, the Airedale Horticultural Exhibition—a Show that, I may remark, was a good one—above the average of provincial exhibitions in excellent productions of plants, fruit, cut flowers (the Dahlias, Roses, and Hollyhocks were most excellent), and vegetables. Amongst the plants I was particularly struck with some extraordinary Ferns from Carr Head. I was introduced to Mr. Ledger, the head-gardener, and he gave me a kind invitation to visit him and see the place the following day.

Accordingly I, in company with Mr. W. Dean, a nurseryman at Shipley, near Bradford, formerly a fellow-servant with me at Pine Apple Place, took a place on the above railway, and travelled to Kildwick Station. The line runs through Airedale, and the views from the carriage-windows were beautiful indeed; right and left we had the lofty Yorkshire hills, with broad dales intervening—the river Aire here being but a brook in comparison. Many of the hills are covered with wood; and as many are but naked moors, clothed only with the purple heather then in full flower. In the dale I observed the reapers hard at work cutting down the golden harvest, which appeared to be but a middling crop, on account of the dry weather that has so long prevailed in this as well as other districts. I observed many large fields of Potatoes, chiefly of the kind known as *Flukes*, easily recognised by its dark foliage and white blossom. I made inquiries, and

was right glad to hear that no disease had then made its appearance in the district. Indeed, generally in the north of England, report speaks favourably of the good of that prince of esculent roots. I hear of no disease hereabouts. Two things I think we are pretty sure of now—good bread, and good Potatoes—blessings for the poor, for which both rich and poor ought to be thankful to the Giver of all good.

As we left Shipley by the seven o'clock A.M. train, and had only seven miles to go to Kildwick, we were soon there, and had then a pleasant walk to our destination. The road passes through two or three English villages far removed from noise or smoke, gradually winding its sinuous way, and as gradually rising upwards. On the way I picked up a few plants out of the chinks of an old wall of the rare Fern—rare in Yorkshire, *Asplenium adiantum nigrum*. I saw plants of *Lastræ filix-mas*, and *Athyrium filix-fœmina*, and also *Polypodium vulgare*. But that part is not rich in Ferns. Higher up near Settle they abound.

Carr Head at length came in view, pleasantly situated on a commanding eminence, having, in consequence, extensive views of the surrounding country. It is a fine modern mansion, embosomed in woods at the back, and a noble park in front, reaching down into a pleasant valley, at the bottom of which is a lake of some extent. The opposite hills are rather bare of trees, but dotted with farm-houses and labourers' cottages. On the summit the grouse-producing moors extend to a considerable distance, and a tall pillar marks the place where once a beacon stood to give notice of "war's wild alarms," now, happily, no more needed in this happy, peaceful country.

Passing the front of the house through a shrubbery, we came upon a rich scene of floral beauty. The flower garden nearly an acre in extent. Nearly in a line with the house is a range of plant-houses, in which I noticed a very fine plant of the *Rhododendron ciliatum*, fully five feet in diameter. Two of these houses are used as vineries, and very good Grapes are annually produced in them. Fuchsias, of various kinds, were planted next the division, forming a flowering partition with good effect. Standing in front of these houses, the view is strikingly beautiful. In the foreground is seen the rich-in-floral-beauty flower garden; on the left, a noble range of large Beech trees; on the right, the shrubberies dividing the flower garden from the pleasure ground in front of the mansion. Beyond the flower garden is a shrubbery composed chiefly of Rhododendrons, and over them the eye wanders to the distant hills; the prospect, however, marred by a row of ordinary-looking cottages, which might be easily hidden by planting a small field close to them.

After sating the eye with this beautiful prospect, my attention was turned nearer home—to the beds in the flower garden. They are of the ordinary forms, chiefly round, oval, and square, with some few in the form called pincushion-beds. There are thirty-four beds, placed at nearly equal distances on a grass lawn with a gravel walk crossing the centre; and, being of such solid forms, the masses of flowers show to better advantage than long narrow beds. The beds that pleased me most were composed of *Agrotatum* in the centre, and a dark *Heliotrope* encircling it. These beds had a peculiar, soft, pleasing effect. Another good arrangement was effected with *Rose* *Petunia* in the centre, next *Flower of the Day* *Geranium*, and, finally, a band of dwarf *Tom Thumb* *Geranium*. *Calceolaria amplexicaulis*. Of this there were several beds in fine bloom. A bed at a corner that had a good effect, consisted of *Evening Star* *Verbena*, a scarlet with a large white eye broadly bordered with the variegated *Alyssum*. In the centre of several of the beds Mr. Ledger had planted *Humea elegans*, then in full beauty. Its light, rich, brown branches waving gently with the breeze took away all monotony of level.

On each side of the centre walk there are, at regular distances, half-standard Rose trees; and round the stem of each small beds are formed and planted with dwarf blue *Lobelia*, dwarf variegated *Alyssum*, *Imperatrice* *Eugénie* *Verbena*, *Saponaria Calabrica*, *Tagetes tenuifolia*, *Cuphea platycentra*, and other low-growing plants.

These had a pleasing appearance, and did not appear to injure the Roses at all. In fact, they were producing the second lot of blooms in considerable profusion. I observed great attention had been given to have the beds competing with each other, and the colours so arranged that no violent contrasts came in contact—a point worthy of imitation.

Leaving this pleasant scene, we passed through the line of Beech trees on our way to the kitchen garden and principal plant-houses. On the way I noticed some tall, naked, Scotch Firs—that is, naked of their own branches, but densely covered

with Ivy almost to their utmost tops. These must be fine in frost and snow. I am persuaded that this dark evergreen Ivy grown up the otherwise-naked stems of trees is worthy of being extensively planted for this very purpose. On the way to the kitchen garden there is a large plot of ground filled with choice Rhododendrons, and other hardy flowering shrubs, which thrive well in these hilly districts. This ground is bounded by a long wall covered with Roses and various creeping plants. *Calystegia pubescens* was in full flower, and very handsome and conspicuous.

The first object I saw on passing through the door of this Rose-wall was a range of Peach trees on the south wall. On them there was a heavy crop of fruit—a most remarkable sight this season. The fruits of this kind, in general, in the open air, being in other places a complete failure, owing to the late frosts in April and May. The trees covered the wall, and were very healthy. Two years ago they were all lifted, and fresh soil put to their roots, which was one cause of their fruitfulness; and the other was, the trees were protected, when in bloom, by a double covering of common fish-nets.

In other places, no doubt, similar coverings have been used, with very partial if any success this year. However, here the means have answered the purpose effectually, and reflect great credit on the manager.

I noticed a large plot of very strong Sea-kale plants which had been raised from strong cuttings of the roots planted last autumn, and all the shoots each plant made rubbed off to one. These strong plants are taken up, forced, and blanched for use in the Mushroom-house, or in frames, and a successional crop of plants is raised every year, cuttings being always preferred to seeds. Another large plot is planted with Strawberries; and to protect them when in fruit from birds and other thieves, the entire plot is covered with nets on a wire frame several feet high—a most effectual protection.

Passing through the kitchen garden, we came upon several span-roofed houses filled with choice plants, but more especially rare Ferns. Here I saw the plants that had attracted my attention at the exhibition the day before—*Gymnogramma chrysophylla* and *Gymnogramma Martensii* were immense bushes, five feet through and four feet high, dense and healthy, covered with gold dust. Such plants I never saw before. The peat from the moors in the neighbourhood appears to suit them remarkably well. Other rare kinds, the names of which would occupy too much space, were equally fine, especially (I must notice this one) *Gleichenia microphylla*, which measured two feet high and as much through.

The last thing I particularly noticed was an immense crop of Melons. They lay in the pits like so many Turnips in a field in Norfolk. I might dilate a great deal more on this fine place; but I must conclude, by declaring that I never visited a place that gave me more pleasure. The entire management reflects great credit upon the gardener and his spirited employer.—T. APPLEBY.

LARGE LASTRÆ FILIX-MAS.—F. W. S. finds in this locality (Oxton, Exeter), in a very shady situation close to running water, a plant of the male Fern *Lastræ filix-mas*, the fronds of which measure five feet seven inches in length by one foot six inches in breadth, with upwards of sixty pairs of leaflets on each stem.

VARIETIES.

SKYLARKS.—I brought from England to India two English skylarks. I thought they would help to remind me of English meadows, and keep alive many agreeable home-associations. In crossing the desert they were carefully lashed on the top of one of the vans, and in spite of the dreadful jolting and the heat of the sun, they sang the whole way until night-fall. It was pleasant to hear English larks, from rich Clover fields, singing so joyously in the sandy waste. In crossing some fields between Cairo and the Pyramids, I was surprised and delighted with the songs of Egyptian skylarks. Their notes were much the same as those of the English lark. The lark of Bengal is about the size of a sparrow and has a poor weak note. At this moment a lark from Cabul (larger than an English lark), is doing his best to cheer me with his music. This noble bird, though so far from his native fields, and shut up in his narrow prison, pours forth his rapturous melody in an almost unbroken stream from dawn to sunset. He allows no change of season to abate his minstrelsy, to any observable degree, and seems equally happy and musical

all the year round. I have had him nearly two years, and though, of course, he must moult his feathers yearly, I have not observed the change of plumage, nor have I noticed that he has sung less at one period of the year than another. One of my two English larks was stolen the very day I landed in India, and the other soon died. The loss of an English lark is not to be replaced in Calcutta, though almost every week canaries, linnets, goldfinches, and bullfinches, are sold at public auctions here.—(*Richardson's Flowers and Flower Gardens.*)

THE HOME OF THE GERANIUM.—From this point (Silvermansdorp, South Africa) we proceeded on horseback, treading our way through thickets of Mimosa, or among fragments of rock, by the margin of a stream which flowed along the bottom of a deep-wooded valley. This stream we frequently crossed—at times passing for a considerable distance along its course—the water, in some places, scarcely covering the horses' fetlocks, in others reaching to the girths. Here I found a new kind of vegetation. The Speckboom or Elephant's Food, *Portulacaria Afra*, was abundant; but I was most gratified on meeting, as with old friends, with several sorts of Geraniums growing in their native state. The *Horseshoe* and plain-leaved *Scarlet* were quite large shrubs, sometimes six or seven feet high. The dark *Oak-leaved* kind grew vigorously. The *Ivy-leaved* variety spread its creeping branches over the adjacent trees and opened its pink blossoms in great abundance. In other places I noticed several of the finer-leaved *Pelargoniums*, with small and delicately pencilled flowers.—(*Ellis's Madagascar.*)

THE MIGNONETTE.—The Mignonette (*Reseda odorata*), the Frenchman's little darling, was not introduced into England until the middle of the 17th century. The Mignonette, or Sweet Reseda, was once supposed capable of assuaging pain, and of ridding men of many of the ills that flesh is heir to. It was applied with an incantation. This flower has found a place in the armorial bearings of an illustrious family of Saxony. I must tell the story:—The Count of Walstheim loved the fair and sprightly Amelia de Nordbourg. She was a spoilt child and a coquette. She had an humble companion whose christian name was Charlotte. One evening at a party, all the ladies were called upon to choose a flower each, and the gentlemen were to make verses on the selections. Amelia fixed upon the flaunting Rose; Charlotte the modest Mignonette. In the course of the evening, Amelia coquetted so desperately with a dashing Colonel that the Count could not suppress his vexation. On this he wrote a verse for the Rose:—

Elle ne vit qu'un jour, et ne plait qu'un moment.
(She lives but for a day, and pleases but for a moment.)

He then presented the following line on the Mignonette to the gentle Charlotte:—

"Ses qualités surpassent ses charmes."

The Count transferred his affections to Charlotte, and when he married her, added a branch of the Sweet Reseda to the ancient arms of his family, with the motto of

Your qualities surpass your charms.

—(*Richardson's Flowers and Flower Gardens.*)

THE PANDANTS exhibits a form of growth peculiar to the vegetation of the seashore in many tropical regions. It thrives well in pure sand near the water's edge. It is also an exceedingly useful tree. The trunk is durable, and is employed in the structure and fitting of native canoes. The leaves, in the South Sea Islands, make excellent thatch, and the fruit or nuts are baked, and the kernels eaten. In Madagascar the leaves are used chiefly for covering packages to exclude rain during transit from the coast to the interior. It is extensively cultivated in Mauritius, and its leaves used for making bags; large quantities of which are brought from the Sechelle Islands, and all the sugar produced in Mauritius is exported in bags made from the leaves of this singularly growing but useful tree.—(*Ellis's Madagascar.*)

TRADE CATALOGUES RECEIVED.

Sutton's Autumn Catalogue. This contains a good enumeration, not only of bulbs freshly imported, but of Geraniums, Carnations, Roses, fruit trees, &c., for autumn planting.

TO CORRESPONDENTS.

PASSION FLOWER (*J. Bell*).—What do you mean by "preservation of the Passion Flower?" To preserve it from inclement seasons, or in an herbium? If the latter, we know of no other mode than that adopted for other flowers.

SEEDLING GERANIUM (*M. D. P.*).—The truss was large (twenty-six pipes), and the petals a bright scarlet; but we can say no more, for the petals were all shed. Besides, an opinion upon a Scarlet Geranium is worthless, unless it can be given upon the foliage and habit of the plant.

MATHEMATICAL DRAWING (*J. Campbell*).—Loudon's volume, entitled "Self Instruction," embraces the subject you need, and much besides that is useful to young gardeners.

GARDENER AND STEWARD (*Necessitas*).—You have brought the difficulty upon yourself by not arranging as to your remuneration at the time you asked for the stewardship. That you ought to have some additional remuneration there can be no doubt; but what that addition ought to be it is quite impossible for us to estimate without knowing much more than we do at present. We recommend you to ask your employer to increase your pay just so much, and no more, as you are willing to accept. If he declines you can then ask him to find another steward, and you can remain gardener as before. Nothing is gained by precipitancy and irritation at not being treated liberally. Your master, like too many other old men, becomes more selfish with age; make allowances for this, and if you address him firmly, fairly, and without any hastiness, you will succeed as you wish.

HOGG'S VEGETABLE KINGDOM (*Henry Crisp*).—"The terms and initials" placed after the genera are abbreviations of the names of the authors who founded them. Thus, under Ranunculaceae, p. 13, you will find Clematis, L., which signifies that the genus Clematis, as at present constituted, was founded by Linnaeus. Atragene, D. C., was founded by De Candolle. Triquetra, Lind., by Lindley; and Viorna, Pers., by Persoon. These contractions form no part of the name of the plant. (*John Wilson*).—The above will be the reply to your question also.

STALKS OF VINE-LEAVES GANGRENED (*E. M.*).—We never before saw Vine-leaves affected like those you sent. Their upper surface was slightly mildewed, but the stalks were completely gangrened, like the stalks of Grapes when "shanked." The consequence must be as you say, that the leaves then dry up "as if scalded." We attribute this disease to the same cause as shanking—viz., the roots getting into an ungenial subsoil, or from being chilled outside the house, are not able to supply sap sufficient to support the growth taking place within the house. Keeping the house cooler, and giving more air, whilst the roots are kept warmer and supplied with liquid manure, would probably remove the evil.

INSECT ON CAMELIAS (*C. H.*).—The thrips has attacked them. Syringe them with Gishurst Compound, and keep the insect away by better ventilation, and more moisture in the air of the house.

SLIMY GRUB ON CHERRY TREE (*W. J. Preston*).—Your Cherry-tree leaves are attacked by the slimy grub, or larva of a saw-fly, *Selandria aethiops*. A perfect remedy is dusting over the leaves with slaked lime.

RED SPIDER (*Zeta*).—Use the Gishurst again and again; and then keep the plague away by more moisture in the air.

NAMES OF PLANTS (*W. H.*).—Your hardy plant is *Cytisus hirsutus*, or hairy Cytisus. (*E. M., Dublin*).—One of the frequently-called "Carrión plants," from their foetid flowers. It is *Stapelia bufonia*, or toad-flowered Stapelia. Some botanists call it *Orbea bufonia*. (*A Lover of the Garden*).—Your leaf is not of the wild Pear tree, but *Pyrus aria*, the White Beam tree. (*A. B., a young beginner*).—Your plants are, 1, *Aschynanthus grandiflorus*; 2, *Physalis Peruviana*; 3, *Pereskia aculeata*, the Barbadoes Gooseberry; 4 appears to be a leaf taken from the *Justicia speciosa*; 5 we are unable to recognise. Sending merely a leaf gives a great amount of trouble. (*F. W. S.*).—Your Fern is neither more nor less than the large form of *Lastrea dilatata*, the broad prickly-toothed buckler Fern. (*A Country Subscriber*).—The spores only show through. It is *Scelopendrium vulgare*, or common hart's-tongue Fern.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

SEPTEMBER 22nd. BRIDGNORTH. Sec., Richard Taylor, Bridgnorth.

OCTOBER 5th. WESTON-SUPER-MARE. Sec., Mr. R. L. Jones, Weston-super-Mare. Entries close September 23rd.

OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. Sec., Geo. Griffiths 7, St. Swithin Street, Worcester.

NOVEMBER 28th, 29th, and 30th, and DECEMBER 1st. BIRMINGHAM. Sec., Mr. J. Morgan, Bingley Hall, Birmingham.

N.B.—Secretaries will oblige us by sending early copies of their lists.

THE ROSSENDALE POULTRY EXHIBITION.

THE Rossendale Committee held their annual meeting this year at Waterfoot, on Wednesday the 31st ultimo. It is really impossible to conceive more unfortunate weather for a Poultry Show, as it rained heavily and without intermission the whole day. The previous night was equally boisterous, consequently the accustomed attendance of ladies and their families was quite out of the question, whilst the harder sex were, from this cause, limited as to numbers. We very greatly regret this contingency, as the preparations of the Committee were praiseworthy; and, from the poultry getting very wet, the Exhibition was necessarily deteriorated. A few remarks on the Show generally, will, however, be acceptable to many of our poultry friends.

The winning pen of *Spanish*, particularly the hens, was unusually good. The *Cochins* were indifferent, and altogether out of condition. The *Dorkings* disappointed every one, being not nearly so good as most shows can boast of in these days. The

Polands were a very weak class, and not sufficiently meritorious to obtain premiums. The Silver-pencilled *Hamburghs* were first-class birds; rarely have we seen a better collection, the chickens, of course, showing the most satisfactorily. The Golden-pencilled were likewise most creditable. The Silver-spangled were not good. The old birds were absolutely wanting in most of the points necessary for good show birds; but some of the Golden-spangled were good. The *Game* classes were the pride of the Show, and the competition was a close one, both in adults and also chickens. For *Bantams*, the Golden-laced Sebrights and Game obtained pre-eminence. The *Ducks* which competed together, whatever the variety, contained excellent Aylesburies, Rouens, and white Call Ducks. The *Geese* were unexceptionable. The Toulouse belonging to Mr. Benjamin Baxter, of Ellslack Hall, Skipton, are only rarely equalled: nor can we pass over a pen of Empdens, the property of Mr. George Cunliffe, of Dulesgate, without very favourable mention. A special prize for the best pullets of any breed (for cottagers competing only) brought forward some very respectable pens, and it must have been gratifying to the donor, James Munn, Esq., of Heath Hill, to find his gift thus appreciated.

The premiums were awarded by Mr. Edward Hewitt, of Sparkbrook, Birmingham; and we trust on future occasions that the weather will be propitious, as a sad discount on entrance fees must have now ensued.

SPANISH.—Prize, S. H. Hyde, Ashton-under-Lyne.

COCHIN-CHINA.—Prize, S. H. Hyde, Ashton-under-Lyne.

DORKING.—Prize, J. Higgin, Overtown, near Burnley.

HAMBURGH (Silver-pencilled).—Prize, J. Munn, Heath Hill. Highly Commended, H. Pickles, Easby Lane, Leeds. *Chickens*.—Prize, J. Munn, Heath Hill, Stacksteads. Commended, T. Barcroft, Gag Hills, Newchurch; W. Warburton, Boothfold; E. Wood, Waterfoot; R. Whitham, Burnley.

HAMBURGH (Golden-pencilled).—Prize, J. Munn, Heath Hill. Stacksteads. *Chickens*.—Prize, J. Munn, Heath Hill. Highly Commended, J. Munn, Heath Hill.

HAMBURGH (Silver-spangled).—*Chickens*.—Prize, S. H. Hyde, Ashton-under-Lyne. Highly Commended, G. E. Hardman, Rawtenstall.

HAMBURGH (Golden-spangled).—Prize, J. Munn, Heath Hill. *Chickens*.—Prize, S. Fielding, Middleton.

GAME (any colour).—Prize, W. and N. Grimshaw, Pendle Forest. Commended, J. Brierley, Intack. *Chickens*.—Prize, W. and N. Grimshaw, Pendle Forest. Highly Commended, J. Townsend, Townsend Fold. Commended, J. Riley, Thornton, near Skipton.

GAME COCK (any colour).—Prize, A. Sutherland, Burnley. Highly Commended, R. Butterworth. *Cockerel*.—Prize, A. Sutherland, Burnley. Commended, J. Butterworth, Bellfield, Roehdale.

BANTAMS.—Prize, E. Fielding, Roehdale. Highly Commended, S. H. Hyde, Ashton-under-Lyne.

DUCKS (any colour).—Prize, E. Fielding, Roehdale. Highly Commended, E. L. Waddington, Bank Cottage, Burnley; J. Greenwood, Burnley; M. Greenwood, Burnley. Commended, —Heys.

GESE.—Prize, B. Baxter, Ellslack Hall, Skipton. Commended, G. Cunliffe, Dulesgate.

TURKEYS.—Prize, E. Holt, Fall Barn. Commended, Z. Ashworth.

THREE PULLETS (of any distinct breed, the property of a cottager under £8 rental, the gift of James Munn, Esq., of Heath Hill).—Prize, J. Langthorn, Wales (Silver-pencilled *Hamburgh*). Highly Commended, W. Greenwood, Sowelough (Game).

BRAHMA POOTRAS.

You inserted a letter of mine, signed "A. B. C.," in your paper of February 1st, 1859, on the Brahma controversy: but now, instead of putting initials, I think it best to sign my name in full, that your readers may not be left in doubt as to who your correspondent is.

The Rev. Mr. Thursby states that which is perfectly correct, and he is known to many old poultry fanciers as a breeder of Brahmas from the first. You will find that I mentioned him in my communication of the 1st February, 1859, as one of our early supporters of Poultry Shows, and first introducer of Brahmas. Miss Watts, Rev. Mr. Thursby, and myself, were amongst the first, if not the very first, possessors of the Brahmas sent by Dr. Bennett, of America, to this country.

I had one of the first pairs of Brahmas sent by Dr. Bennett, and have had many others from him since; and, with perfect sincerity, I can endorse all stated by the Rev. Mr. Thursby in answer to "W. H., *Exeter*," and, further, I can corroborate all that the Rev. Mr. Thursby states as regards breeding of Brahmas.

At one time there was a dead set made against the Brahmas; and poultry fanciers were told they could breed them from this

and that variety, so that they endeavoured to produce them by the means pointed out. The result was many so-called Brahmas recently purchased at Poultry Shows and elsewhere, which, when you breed from them, their progeny are all sorts of colours; of course going back to those that the parent birds were crossed with. On the other hand, I would venture to assert that if Dr. Gwynn, Miss Watts, and the Rev. Mr. Thursby have any Brahmas from the original stock, that they would produce alike almost to a feather.

I stated in my letter of February 1st that I had not publicly appeared in the poultry world for the last three years, but that I had been watching the quiet and steady progress it has been making, my attention more particularly having been directed to the Brahmas; and I hope yet again to put forth some that will defy contradiction, and in full corroboration of what the Rev. Mr. Thursby has stated in praise of them.—PAUL GARBANATI, 14, Marylebone Street, Regent's Quadrant.

THE EARLY DECREASE OF THE STORE OF BEES.

I MAY have already mentioned that the common charge against bees for storing up too much pollen is unfounded—at least, that it only accords with their instinct, which is ill adapted to our climate; likewise that these insects store up about an equal quantity of pollen and honey, both being gathered at the same time. The loads of pollen are less frequent than those of honey; but each is nearly double in quantity, and lasts much longer. This is owing in great measure to the lesser demand for food for the larvæ during cold weather. Connected with this, I have to remark that sometimes the store of pollen seems to increase, while that of honey decreases, even so early as the middle of August. But as regards this, much depends on the state of the weather and pasturage. In heath districts bees often add much to their store of honey in September. However, from long experience I find that their store begins to lessen in this locality (Norwich) about the time mentioned, even in good seasons like the present, when the thermometer stood at 83° in the shade on the 25th ult. This shows that the early decrease of stored honey is not so much owing to the failure of the pasturage as to the long and cold nights, when the bees begin to consume more food than they collect. Therefore bee-keepers are wise who take away the extra honey about the time referred to.

Since the above was written, I find that "A DEVONSHIRE BEE-KEEPER" notices my statement to "B. and W.," that "bees never collect pollen alone." He calls this "my fallacy," and backs it with the following:—"That two-thirds of his bees working from this artificially-formed stock returned with full loads of pollen at a time when, from lack of honey in the flowers, my hives in this locality are rapidly losing weight." This, of course, does not apply to the point in question, and the latter part is the common occurrence which I have noticed above. However, I have to note, that about the "17th of August," when other kinds of insects that do not collect pollen found honey, it would be absurd to think that bees would not. With regard to proof that they gather honey and pollen at the same time, and carry both in the same loads, I recommend those who doubt this, either to watch the insects amongst the flowers, or to destroy some laden with pollen, and they may find their bags filled with honey.—J. WIGHTON.

OUR LETTER BOX.

LEO WEAKNESS (*D. B. B.*).—Give nourishing diet, such as bread soaked in ale, and four grains of citrate of iron daily, until the bird's strength improves. Let him have also plenty of green food.

LONDON MARKETS.—SEPTEMBER 12.

POULTRY.

The market has a downward tendency. The supply of poultry is increased: as, the harvest being finished, people have time to send, and London being empty, there are no buyers. The supply of Grouse is moderate.

	Each.—s. d.	s. d.		Each.—s. d.	s. d.
Large Fowls	4 0	to 4 6	Turkeys	0 0	to 0 0
Smaller ditto	3 0	3 6	Grouse	1 6	3 0
Chickens	1 9	2 0	Pigeons	0 7	0 8
Geese	5 6	6 0	Rabbits	1 4	1 5
Ducks	2 6	3 0	Wild ditto	0 8	0 9

WEEKLY CALENDAR.

Day of M th	Day of Week.	SEPTEMBER 20—26, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock after Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
20	Tu	Erica concinna.	30.174—29.616	67—50	N.	—	44 af 5	3 af 6	19 10	23	6 30	263
21	W	EMBER WEEK. St. MATTHEW.	30.184—29.914	69—57	E.	—	45 5	1 6	44 11	24	6 51	264
22	Th	Sun's declin. 0° 25' N.	29.787—29.631	71—47	E.	.26	47 5	v	morn.	25	7 12	265
23	F	Fourcroya gigantea.	29.742—30.597	71—42	S.E.	—	49 5	56 5	12 1	26	7 33	266
24	S	Freziera thaeoides.	30.429—30.046	66—34	W.	—	50 5	54 5	44 2	27	7 53	267
25	SUN	14 SUNDAY AFTER TRINITY.	30.508—30.400	68—38	W.	—	52 5	52 5	14 4	28	8 14	268
26	M	Heylockia pusilla.	30.447—30.314	71—52	N.E.	—	53 5	50 5	sets	29	8 34	269

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 64.2° and 44.6°, respectively. The greatest heat, 79°, occurred on the 29th, in 1832; and the lowest cold, 24°, on the 27th, in 1828. During the period 112 days were fine, and on 112 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

AMERICAN PLANTS.—If a rich display of bloom is desired in early spring, the plants should be now potted in rather small pots, to be plunged in the warmest part of the garden, and introduced to the forcing-house from November until February, as they may be required. The most suitable for such a purpose are the Azaleas of the *nudiflora* class with various hybrids, *Andromeda pulverulenta*, *Daphne cneorum*, *Kalmias*, of sorts, *Ledum latifolium* and *L. thymifolium*, *Polygala Chamæbuxus*, *Rhododendrons*, and *Rhodora Canadense*.

STOVE AND ORCHID-HOUSE.

Stove plants cannot be too cautiously watered late in the autumn. Nothing is now wanted but to keep the soil from getting quite dry. Slight fires to be made in the forenoons of dull and rainy days, not so much for the purpose of raising the temperature as for drying the house. Air to be given at all favourable opportunities, to maintain a healthy atmosphere. Several of the Orchids—viz., *Aërides*, *Dendrobiums*, *Saccolabiums*, *Vandas*, &c., may be encouraged by the application of a high temperature, with much moisture and less shading, to make further and sometimes considerable growth.

CATTLEYAS.—Young plants may also be encouraged to grow for some time longer; but older specimens should be reduced to a comparatively dormant state by a gradual diminution in the supply of water, and a decrease in temperature, with less shading.

STANHOPEAS.—To be treated as advised for Cattleyas.

FORCING-HOUSES.

CHERRIES.—Whether they are in pots or in borders, and have arrived at, or are only approaching, a comparatively dormant state when but little attention will be necessary, still that little will be required to keep them clear of insects and of the leaves as they become sufficiently ripe, when they come readily off with a touch. The old surface of the soil of those grown in pots to be removed, and the same quantity of fresh, in a rough state, put in its place. Remove them without further delay, if not already done, as advised in the early part of the month, to the north side of a wall or hedge until wanted; or if not wanted until a sharp frost sets in, they should be protected from its icy grasp.

FIGS.—Trees in pots to be treated as advised for Cherries.

MELONS.—Although the weather has been favourable for ripening the late fruit, as the display at the Crystal Palace lately proved, they may in some places still require the assistance of a good top and bottom heat, and a large portion of air in the middle of the day.

PEACHES.—Trees in pots to be pruned, and treated as recommended for Cherries. No time should be lost if fresh trees are to be planted in the place of any that may be worn out. The choice should be made of young trees that are in a bearing state, and all the better if they had

been moved last autumn. In pruning the trees, after the leaves have dropped, be sure not to leave them too crowded; but if the summer pruning, as frequently advised, have been properly done, but very little, if any, will be required now.

PINES.—Persevere in former directions as to general routine management as long as the present fine weather continues, when air may be given liberally; and to shut up earlier in the afternoon to secure as much sun heat as possible. Plants swelling their fruit to be assisted with a brisk temperature, both at top and bottom, from 65° to 70° at night, allowing it to rise to 80° on sunny days with a steady bottom heat of about 80°. When watering is necessary let it be given in sufficient quantity to moisten the whole of the soil.

VINES.—The early house, or the first lot of Vines in pots, if it is intended to start them in November or December, to be pruned, that sufficient time may be allowed to heal up the wounds, and the buds to become more plump and prominent. The border of the early house to be thatched with straw, or covered with any other such material, to protect it from heavy rains. It is also advisable in some situations to cover the borders of the houses in which it is intended to keep Grapes late, to prevent the soil getting saturated about the roots. Continue to look over ripe fruit, cutting out the mouldy or tainted berries; applying gentle fires only when necessary to expel damps, with a free circulation of air—as a warm, close atmosphere is as injurious as damp.

WILLIAM KEANE.

KEW GARDENS AT THE END OF AUGUST.

THE flower gardens at Kew were the great social question round London all this summer; they were in everybody's mouth, and Parliament at last yielded to the old adage, that "what everybody says must be true," and granted thirty thousand pounds sterling for the authorities at Kew to spend in such a way as to keep the Gardens up to their character of "the best gardens in England, or in all Europe."

A magnificent conservatory for half-hardy plants in winter, and for drawing-room plants in summer, was then staked out on the right-hand side as you go from the great Palm-house to the Chinese Pagoda, perhaps half way between the two. It is to be, goodness knows what, but the intention is to have a grand body and two wings. The body is to be so large that it will hold all the half-hardy specimens now in the Garden in want of room and better lodgings, and the wings will be added as occasion for them comes round. All this I had from Sir W. Hooker himself. I had the luck to meet him and Mr. Smith, the head curator, in the middle of the Garden. I have known both of them for the last quarter of a century, but I never knew either of them to look better than they did that day. As to being in good humour, why every gardener in the three kingdoms must be in good humour at the good news of the "grant" to Kew, to second and crown the exertions of these two heads for

the last twenty years. The one the most scientific head in Europe, the other the most practical head in Her Majesty's dominions. But the turn of a die, and another head would have been at Kew, the very shake of which would wither the very leaves off the trees, and all the "grants" in this world would never make Kew popular under that head.

My day was Monday; and to show how popular Kew has become, I may mention that eight thousand visitors were in the Gardens the previous Sunday afternoon, enjoying the glorious provision made by the Author of our being for the gratification of us, His erring creatures, in the world of flowers. How flowers can give the greatest degree of pleasure, be, therefore, the subject of my theme. But, first of all, let me explain the reason why I never pass over any seeming fault which appears to me in a flower garden. Every one in the peerage, down from Her Majesty, who is fond of a garden, and has one, spends part of every Sunday afternoon in it like the eight thousand aforesaid; and thousands upon thousands can see and judge of garden faults just as well as any gardener whatever. They also read all our garden books, and put faith in our writings according to the degree with which we hold to the letter of the law, and whoever leans to the right hand, or to the left, is soon found out and despised. "He is no authority: he may classify a plant or grow a Melon, be a pleasant writer, an honest man, and all the rest of it, but he is no judge in the flower-garden, else he would see as others do." Well, "others" do see as well as the best of us now-a-days, and "others" do like the truth, and dislike untruth. Hence it is that I must tell "the truth, all the truth, and nothing but the truth," as far as I know, and may be expected of me. And the truth is, that the flower gardens at Kew are better planted this year than they ever have been, and that no error of principle can be detected in one of the beds, or in the groups of beds. Of course, like other first-rate flower gardens, they will have changes, year by year, also improvements by improved seedlings as they come on the stage; but so long as they hold on to the principles on which they mix and arrange their colours now, I do not care much who will review and criticise them after me. The wonder is, that scientific attainment does not always qualify a man or woman to judge properly of the fundamental principles of flower gardening.

The greatest fault I ever found with the laying out of the terrace garden in front of the Palm-house was that a bare grass plot, in the very centre of each of the two divisions, was designed to stand a vase—a flower-vase—on. This was the very contrary to the principle on which such terrace gardens are now planted; and there are two distinct reasons why it was the contrary. The first reason is, that statuary is only the accessory of composition-planting, not part or parcel of the design itself for planting a given figure. The second reason is the very same which drove the scarlets and yellows out of the centre beds: in such compositions they attracted the eye to the centre, and caused an optical delusion—made the place apparently less than it really was. Those central grass plots are now made into neutral beds; and each part or end balances the colours from its centre, like Justice holding the scales. But change to the old system, and balance as is now done; put a scarlet bed in that centre, and the four corner scarlets as at present—how would that look? Ten times worse than the old plan. There is no balance, or a point to balance from: it is just like taking the nose off the face. Again: apply the vase, place it on the balance-point, as was intended by some one when the garden was formed, and you commit a double fault, each of which would be more outrageous on principle than displacing the nose. You make statuary, not an accessory, but an actual part of the planting; and the optical delusion would be fourfold—even a squinting eye could no more escape resting on that vase, to the prejudice of the rest of the composition, than it could

look straight. But, fortunately for the thousands who will take their lessons from Kew Gardens, we have escaped both horns of that dilemma; and the neutral centres will never cease there until a newer principle is adopted in the planting of composition figures and terrace gardens.

Now, let us read this same composition as it stands. *Flower of the Day* Geranium in the centre of that bed, and all the flowers picked off; the margin a broad band of *Cerastium tomentosum*. The bed is not quite a circle, but in the form of two of the figure 8, the one 8 placed across the other 8—the "Lover's-knot," in fact. Between the body of the bed and the *Cerastium* runs a single row of *Baron Hugel* Geranium, for a green to mark the boundaries of the two whites—a most capital idea, but it was carried too far, the *Baron* following the lines of the 8s across the white centre instead of marking where the *Cerastium* ended and the *Flower of the Day* began. The error was discovered long before I saw it, but a new power was thus found out—that power is, that green has the same effect as white in "cutting" two colours of the same cast. The *Baron* was not allowed to bloom—it only made a subdued green on the white ground. If *Punch* had been on one side of it, and *Judy* on the other, it would look a purple-brown, owing to the horseshoe mark—a pleasant ground colour for all manner of cut flowers, and answered just as well as a row of variegated, or of any white flowers, to "cut" the red of *Punch* from the pink of *Judy*. *Perilla* has the selfsame power. A scarlet row on each side of a *Perilla* row would not prejudice the effect on a ribbon-border more than if it were a row of *Flower of the Day*. The two end corners on each side of this bed were of *Tom Thumb*. The next pair of beds, right and left of the centre were yellow—*Calceolaria amplexicaulis* trained down. Then blue, purple, and pink; the weaker colours nearer the centre, and in the line of the centre, or between the corners. The quantity of each colour, the position of it, and the style of growth of the plants were all to my fancy, and on the approved principle. Four of the beds at equal distances from the centre; and near it were circles filled with *Perilla*, every leaf of which was cut or trained to the same height, and the four beds might have been out of one mould.

Thus symmetry, although it will never supplant colour in the flower garden, as some say it ought, is, like statuary, itself a form of symmetry—a grand accessory and a wonderful help to the effect of masses of different colours put together. Therefore, whichever way you appoint your colours, recollect the grand secret is to keep the plants in such trim as to make each bed look as if it came out of a mould that morning. But recollect at the same time, that all the symmetry on earth will not authorise one to push his way of placing colours before the world if they are different to the acknowledged rules by which ladies plant and paint.

There are two oblong beds, sixteen feet or so long, at each end of this terrace, and so placed that their longest side runs across the line of the terrace. One looks across any of the four beds from the terrace; and to suit this view, on the same level the beds are planted "across," in stripes, five stripes in each, scarlet *Verbena* the centre stripe, white *Verbena* on each side, and two *Purple King* stripes outside,—a telling idea, the principle being the same as true ribbon style.

Dahlias are not trained, but all their beds, and the beds for Hollyhocks, are deeply edged with the Gardener's Garter, or the common Silver-striped Grass. The Hollyhock-beds, in addition, are now placed in appropriate positions, just outside the Yew fence which bounds the terrace gardens. The fence hides their bare stems from those on the terraces, and the Silver Grass from those on the other side; and early and late, these Hollyhock-beds make no blanks, as then they are hidden by the hedge—a very judicious arrangement under the circumstances.

The north-west terrace includes the American garden, and a long line of promenade running through the centre

of it, but on a higher level than the American beds. That long line has a fine effect, looking from that side of the grand conservatory. The foreground is the American, in two great sunk panels, right and left, and in the centre of each panel rises a circular mount to the height of the vista walk. It is flat on the top, and a Cedar is in the centre of each. In one or two hundred years the branches may spread wide enough to cover the whole top; but meantime there is ample room for a display of flowers, which adds to the beauty of the American garden, and the vista view along between the said long line of promenade-beds. We shall begin reading off the beds, however, from the lake-side of the Palm-house. Between it and the Victoria Regia-house are some new beds and improved arrangements, showing that the variegated Mint, and *Mangles' Variegated*, half and half, and not kept too closely cut, make excellent imitations of the *Lady Plymouth* Geranium. Also, that the dwarf pink *Ivy Leaf* and Mignonette make a good bed; also, that *Mangles' Variegated* do well together; but that half and half of *Flower of the Day* and the variegated Alyssum, are not quite so good, except in dull weather. Looking at that bed in Italy would be like throwing vinegar in one's eyes; in England it is ten degrees softer, and ten people out of twelve like it, "for the sake of somebody." I shall not tell the eleventh person, but I am the twelfth; we two can only look at it with comfort, when we could see a bed of *Gazania splendens*, because the sun was not out.

Going down to the head of the great central walk from the terrace, the best things were four circles, or two match pairs of *Mrs. Holford* Verbena, and edged with *Purple King*. Also, two oblong beds of the *Countess of Ellesmere* Petunia, to tell an experiment in another part of the ground, in front of the old museum, where a bed of the *Countess* is edged with the *Shrubland Rose*, and the latter is, at least, twice as good as the best bedding Petunia from elsewhere. At the top of the ground-promenade was where I met Sir W. Hooker: the meeting had two charms with me, and the last of them was the opportunity I had of resting and looking back on the lake, the terrace-garden, and the new museum, and the great Palm-house, with the accessory of flower-vases. That is the best point to see the effect and beauty of water and statuary, in connection with high flower gardening. At that part is, indeed, a most beautiful sight.

The vases are admirably doubled by their own shadow in the lake. Large reedy-like plants in masses near the margin; among which are many plants of the *Tritoma uvaria*, or Kniphofia as they call it there. Here, then, was a grand discovery made by two independent firms in one season, and without the one knowing what the other was about. *Tritoma* a water or marsh plant! discovered to be so at Kew many months before I made the experiment; but there was none of it at Kew near so strong as four of mine from the small sets. My plants were fed by hand, while those round the lake had to bear the brunt of the banks when the water was low in the lake.

The grand promenade-walk along the centre of the garden being divided by cross walks about the centre, the lower half, this year, is a reflect of the upper half, and each half is again divided into separate and independent groups by upright Conifers in opposite pairs planted in the line of the centres of the groups; each group, therefore, stands on its own merits, without much reference to the next groups right or left of it; and this is the cause of so much more interest, in this instance, from the usual sameness of promenade planting—as, for instance, at the bottom line of beds, all of one kind, along the bottom of the great terrace at the Crystal Palace, and in the lines of distinct and different beds in Hampton Court Gardens. The groups here consist of an oblong bed of eighteen or twenty feet in length, with a circular bed at each end of it. These in pairs make six beds to a

group. The two long beds are always duplicate, and any two of the circles may differ from the other two; but generally the four are of the same plants or styles of plants.

Beginning at the upper end next the lake, the planting this season is different from that in former years. The first two beds are made the same as the last two beds of that half; but as that is not the principle on which this style of grouping stands, I shall read the two end pairs of beds in the first group, then all the rest will read grammatically, as it were. Then the first two pairs of circular beds are of *Cuphea ignea* in the centre; then a ring of *Purple King* Verbena and the edging of *Cerastium tomentosum*—a very nice change where so many kinds of planting are practised. The two long beds of this first group are of *Ageratum*, edged with a dark-red Verbena.

The second group has the four circle beds of *Perilla*, edged with *Calceolaria* trained down—splendid beds. The two long ones are the best in the garden—the centre of them is *Flower of the Day*, then *Brilliant*, and outside *Purple King* Verbena.

Third group, the four circles of *Purple King* and the edging of *Hippodrome* Verbenas, the latter a light lilac, and very effective; and the two long beds of *Cerise Unique*, and a white edge of *Cerastium*.

The fourth is only a pair of oblong beds in Roses, and the ground covered with Mignonette. Also in many parts of the garden are groups of Roses, and all of them with Mignonette, which is, most certainly, the best way of all the ways hitherto adopted with Rose groups in flower gardens. No kind of gay flower seems to agree with Roses in the same bed; and none of the surface of any bed should ever be seen bare. Roses and Mignonette agree in the idea, as well as the Mignonette spreads and covers the ground. In my younger days Roses and Violets in the same bed were the fashion.

The fifth group, the four circles in *Ageratum*, quite closely trained, and *Tommy* Verbena for edging, and the two oblongs of *Punch*, edged with variegated Alyssum. *Punch* is still the best bedder here; the four large half-circular beds of it up next the lake are the finest in England, their edging looks as if it were of *Lady Plymouth*, but is, in fact, one-half *Mangles' Variegated* Geranium and one-half variegated Mint, standing about six or eight inches high, and from twelve to fourteen inches wide. This requires a great deal of time, care, and skill; but give them, and no edging can excel it in effectiveness to a red, purple, or scarlet bed.

Sixth group. Two oblong beds only, and the two in *Calceolaria amplexicaulis*, edged with purple Verbenas—two splendid beds. But *amplexicaulis* does better at Kew than anywhere else, or they manage it so much better.

The seventh group reaches to the centre, and I put the four circles as they stand in the first group. The two oblongs are of *Mangles' Variegated*, edged with *Mrs. Woodroffe* Verbena. These two beds are my own private fancy. I like them better than any of the rest; but that is not here or there—mere private taste. The best beds of *Mangles'* in the three kingdoms, as far as I know, are the four fan-beds round the "fountain" at Shrubland Park. To finish this half, and to meet the requirements of the cross walks, a group of Roses come in, and a group of *Tritoma uvaria* in the four angles of the cross walk, the *Tritoma* being edged with Silver Grass. Splendid masses of this most charming flower in the centre of a great avenue of flowers, laid down on scientific principles, was a fertile idea well carried out. Here, on the cross walks, eight new oblong beds have been made this year, with their ends to the great walk. They are beautifully arranged, and give quite a new feature to this part of the grounds. The four nearest the main walk are of *Flower of the Day*, one row of *Brilliant* all round, and a band eighteen inches wide of *Purple King* Verbena. Altogether splendid beds.

The next four are in contrast, the *Purple Zelinda* Dahlia, a row of Asters, and an edging of *Calceolarias*. Many other beds and groups are in different parts of the ground, some for experiments to try the effect of different arrangements, and some to "stand for good." One circle on the grass near the houses has a fine *Humea* in the centre, then Balsams, *Tom Thumbs*, and an edging of variegated *Alyssum*. The one half of the ground for the botany of British plants is occupied with a large mass of Hollyhocks and Dahlias, the other half being devoted to medicinal plants—an excellent arrangement; as, if ever a British botanist should call to see his native plants, and get sick at the idea of florists' flowers, there are the medicine plants right at hand to put him all right again. *Mrs. Vernon* is a favourite nosegay *Geranium* here for the first time this season, both in beds and vases; and they have discovered that it should never stand alone, as, unless a bright scarlet is in front of it, the true tint of light purple is lost by itself. At a short distance it gives a lateritia red-brick tint. Beds of *Pentstemons*, *Calceolaria amplexicaulis*, and *Shrubland Rose* *Petunia*, mixed and edged with white, must look just the thing for bye-places, and many kinds of such mixtures are seen about, and will be useful to visitors who are looking out for divers mixtures to introduce among their own odds and ends at home; but such mixture will not do in regular arrangements of colours. One other good mixture was a large bush *Fuchsia* in the centre of a circle, then a row of *Perilla*, then *Mrs. Vernon*, and round it a band of *Matricaria grandiflora*, the large double white Feverfew-like plant. The experiment to see *Countess of Ellesmere* *Petunia* and *Shrubland Rose* in one bed is most complete in favour of the latter. China Asters, French and African Marigolds, and all cottage-garden flowers, are grouped in beds with as much attention to effect as if they were the best flowers in the land, showing unmistakably the desire of the authorities here to humour, instruct, and amuse, and teach the very humblest of the thousands of their visitors, which is one of the secrets why Kew is so popular with the Londoners.

One peculiar bed, for experiment, has *Calceolaria amplexicaulis* down the centre, then sixteen inches deep of *Perilla* round it, and fourteen inches deep of low white edging—a good hit. *Titian*, a dwarf yellow Dahlia, and *Alba floribunda*, are the two best bedding Dahlias here after *Zelinda*; and there is a good assortment of the new Phloxes, and a great number of good border herbaceous plants, *Coreopsis*es, *Rudbeckias*, and *Pentstemons*, being the principal kinds then in bloom. The old *Moricandia arvensis*, which was my best winter plant to cut flowers from in 1830, was also in bloom,—a mere lilac-weed of the Crucifers, but it blooms all the year round, and blooms in winter in the glasses on the mantelpiece, just as well as in Kew Gardens in summer. *Gaura Lendhemeri* was here also a fine border-mass plant. *Spergula pilifera*, the new Grass for lawns. A great botanical batch of it in the lightest black sandy soil. Immense tufts of *Tritoma uvaria*, with from twenty to seventy spikes of bloom; so many spikes to be cut out, as their beauty was over, and double so many more young ones rising up, to take up and carry on the attention and admiration of visitors. Scores of large old specimen *Geraniums* planted out in single masses on the grass and margins of frequented bye-ways, and in conspicuous places. *Fuchsias* the same, and, in short, all the auxiliaries that one expects to find in a Duchess's flower garden, may be seen here without stint.

The way they winter the great old *Geraniums* is to take off all the leaves, pack as many of them in large pots as they can cram the roots into, kept them all but dry when they have light and no frost. The Hesperian Rhubarb plant, called *Gunnera scabra*, is now most flourishing in the open ground, and showing four hairy, purple, large heads, three of which are in bloom, and the other coming. One of our very best plants to

place near an old ruin. It is like a Rhubarb before the flood, and blooms like a *Zamia*. D. BEATON.

SIMPLE HINTS ON PROPAGATING BEDDING PLANTS.

(Continued from page 352.)

DOUBLE GROUNDSEL.—Many persons admire this very much; but it is best—whether purple or deep crimson—for small beds, or for edgings to large beds. In a large bed it is next to impossible to cut or trim it, and, consequently, unless in peculiar seasons, its beauty is apt to depart in an early part of the autumn—when cut and trimmed it will last all the season. Cuttings of firm little side-shoots, taken off from July to the end of August, will root nicely under a hand-light or frame kept close, shaded in sunshine, and with air given at night. The easiest plan is to keep a plant or two in March and April, to stop it frequently to prevent it flowering, and to prevent rampant growth by under potting and under watering. Such a plant will furnish plenty of firm stubby little shoots that make beautiful cuttings in summer; and these, placed under a hand-light, will strike with but little attention; and, if kept rather stunted, will make fine hardy plants for passing through the winter; and in spring may be easily multiplied to any extent wherever there is a hotbed.

ANAGALLISES are best treated in much the same way. If cuttings are taken in July, August, and September, little firm side pieces, about an inch or so in length, are the best cuttings. A frame or hand-light will be necessary in the two first months mentioned; but if the middle of September should arrive before the cuttings are put in, a slight bottom heat would be advisable. Every kind of bedding plant, however, keeps better in winter if it never have met with any coddling that can be spared in rearing them. The best plan is to pot a few plants in May; instead of planting them out, nip and stop them all the summer, to prevent them flowering, and give but little pot-room or watering for encouraging growth; and such plants will furnish a store-house for securing any amount of cuttings in the spring as soon as a *Cucumber* or any other bed is at work. For beds, unless very small ones, I do not consider these suitable, as they open and shut so much with the sun; but for dangling over a vase or rustic basket, in places where hurricanes of wind cannot reach them, few things look more beautiful. Planted close to the edges of such receptacles, or plunged in small pots, they bloom with a profuseness rarely witnessed in beds, however treated and managed in them.

LOBELIAS.—All the best low-growing kinds should be treated in the same way. The finest blue we have met with for small bed or edging is the new *speciosa*. If cuttings are still wanted, discard the flowering shoots, and select short little bits about an inch in length. If these are not to be got, a few plants must be deprived of all the flower-shoots, and these short shoots will then soon appear, and may be taken off; or the plant taken up carefully, and placed in light sandy soil, rather under-potted, and so kept over the winter for getting cuttings in spring, when each little bit, if placed in a slight hotbed, will strike like Couch-grass, and make fine young plants for putting out. By either of these modes I have had little difficulty with this and other kinds. But where there is not much convenience it is the best plan to keep a few plants in pots over the summer, cut them over to prevent them blooming, and there will be no difficulty in having a thicket of close, short, green shoots that, in the matter of cuttings, will say to you in spring, "Cut and come again." Contrary to general expectation, this new *speciosa* seeds, and the seedlings come true to the variety, unless other varieties—such as the old *speciosa* and others—are growing near it. Those who use this beautiful kind only may depend on having plenty next season if they save a dozen or two of seed-pods, and sow the seeds in a slight hotbed, as frequently advised for small seeds in March or April. Much as it is desirable for the above purpose, it is not equal to the old *speciosa* for hanging round a vase or basket. In such positions we have had a dense fringe of light blue hanging down for two feet, and requiring but little care. By some means we lost a fine variety of *Lobelia begoniaefolia*—a most excellent plant for this dangling system. Frequently we have had it from thirty to thirty-six inches long, a fine mass of light blue. I have not met with it for years, but for such purposes nothing could look more lovely. All the *Lobelias*, *Anagallis*es, and *Groundsel* require to be kept close, and shaded from bright sun-

shine. When the cuttings are inserted, and, consequently, though the leaves at the lower joints and one or two above are removed, the smaller leaves at the point are allowed to remain. If in July and August and the first days of September the cuttings stand twenty-four to thirty-six inches from the glass, they will want much less shading to keep them from flagging. A cutting should never be allowed to show distress. That a syringe may recover them again is not the question. Often the wetting is ruinous, and in all cases shows want of interest and care in the manager. For want of a sprinkle or a timely shading scores of cutting-pots and thousands of cuttings have to be taken out as useless, and thus the whole time and labour involved in making them thrown away. For such little tit bits a surfacing of silver sand, or any other fine sand, is desirable, as it, from its closeness when moist, prevents the air getting easily to the base of the cutting. The selecting the little firm pieces from the base of the plant, or from the sides of the flowering shoots, is, no doubt, a little troublesome; but, the first care and trouble overcome, success is almost certain. I have had handfuls of such plants given me, and hardly a good cutting among them; but beggars cannot be choosers, and must make the best of what they get. Flowering shoots cut into pieces will, no doubt, strike, and are struck every year in plenty; but I should have more faith in one little wiry bit of a young shoot from one to one inch and a half long, slipped off with a heel close to the old stem, than I should have in twenty cuttings made by cutting up a flowering stem into pieces.

R. FISH.

HARDY FLOWERING HERBACEOUS PLANTS.

(Continued from page 353.)

ARETIA.

Nat. ord., Primulaceæ. *Linn.* Pentandria Monogynia.

GENERIC CHARACTER.—*Corolla* hypocrateriform, five-cleft; tube ovate, contracted at orifice. *Stigma* flattened, globose. *Capsule* one-celled, globose.

ARETIA ALPINA (alpine). *Plant* villous; *leaves* linear, spreading; *scap* one-flowered. 3 in. Pink. June. Switzerland.

A. ARGENTEA (silvery). *Leaves* ovate-acuminate, mucronate, slightly downy, silvery. 1½ in. White. June. Switzerland.

A. HELVETICA (Swiss). *Stems* rounded; *leaves* ovate, rather hairy, imbricated; *flowers* nearly sessile. 3 in. White. June. Switzerland.

A. PUBESCENS (downy). *Leaves* ovate-acuminate, downy, crowded on the stem. 1½ in. White. June. Switzerland.

A. VITALIANA (Vital's). *Stem* branching; *leaves* linear, recurved, smooth above; *flowers* almost sessile, petals converging. 3 in. Yellow. June. Pyrenees.

Beautiful plants, allied to the Primrose. The second is found to be rather tender, requiring the protection of a frame or a hand-light. The great enemy to these lovely tiny plants is, damp at the roots: hence they should have a dry compost of sand, loam, and peat in equal parts, and be planted on little raised mounds, surrounded with small stones. They answer well as rock plants, but must not be smothered with others more robust.

Propagated by taking up the plants in April, dividing them very moderately, and replanting immediately in the compost above described. They are worthy of all this care and attention.

ARGEMONE.

Nat. ord., Papaveraceæ. *Linn.* Polyandria Monogynia.

GENERIC CHARACTER.—*Calyx* three-leaved. *Corolla* six-petaled. *Capsule* half-valved.

ARGEMONE BARCLAYANA (Barclay's). *Stems* spotted. 5 ft. Cream. June. Mexico.

A. GRANDIFLORA (large-flowered). *Leaves* sinuated, smooth, spiny-toothed, nerves unarmed; *flowers* panicled; *calyx* smooth; *capsules* bluntly quadrangular, almost unarmed. 3 ft. White. July. Mexico.

These are showy plants, of a strong-growing habit, allied to the Poppy tribe. The first is rather tender, and should be sheltered in winter.

Increased by taking up the plants in March, and dividing the plants carefully, so as to preserve one or more eyes to each division; replant them directly in a deep loamy soil.

ARISEMA.

Nat. ord., Araceæ. *Linn.* Monœcia Polyandria.

GENERIC CHARACTER.—*Spathe* convolute at the base. *Spadix* top naked. *Anthems* verticillate; filaments distinct; cells open-

ing by a transverse pore. *Style* short, or absent. *Stigma* capitate. *Berry* one or few-seeded. *Seeds* globose, with a broad basilar hilum.

ARISEMA DRACONTIUM (dragon). *Leaves* pedate, entire; *spadix* subulate, longer than the oblong spathe. 2 ft. Green. June. N. America.

A. TERNATUM (three-leafleted). Stemless; *leaves* ternate; *spadix* longer than spathe. 9 in. Purple. May. Japan.

A. TRIPHYLLUM (three-leaved). Stemless; *leaves* ternate, entire; *spadix* clavate, shorter than spathe; *spathe* ovate-acuminate; *stalk* flat. 9 in. Brown. May. N. America.

Curious, interesting plants, allied to Arum. The second is rather tender, and should be sheltered through the winter.

Propagated by dividing the tubercous bundle of roots, preserving at least one bud to each division. They should have at least half peat added to the loam in which they are planted.

ARNICA.

Nat. ord., Asteraceæ. *Linn.* Syngenesia superflua.

GENERIC CHARACTER.—*Involute* many-sepaled, double-rowed. *Sepals* equal. *Receptacle* naked. *Pappus* simple. *Florets* of ray usually with five abortive athers.

ARNICA CLUSII (Clusius's). *Leaves* remotely toothed, hairy; radical ones stalked, oblong, narrow at the base; stem ones alternate, oblong-lanceolate, entire; *stem* one-flowered. 1 ft. Yellow. July. Switzerland.

A. CORDATA (heart-shaped). *Leaves* cordate-ovate, downy beneath; *flower* terminal. 1 ft. Yellow. July. Switzerland.

A. CORSICA (Corsican). 1 ft. Yellow. July. Corsica.

A. GLACIALIS (icy). *Leaves* rather toothed and rather hairy; radical-leaves stalked, oblong, with round base; stem-leaves alternate, sessile, oblong-lanceolate. 1 ft. Yellow. July. Switzerland.

A. LANIGERA (wool-bearing). 1 ft. Yellow. Italy.

A. SCORPIOIDES (scorpion-like). *Leaves* toothed, teeth acuminate; radical-leaves stalked, roundish-elliptical; stem-leaves alternate, oblong. 1 ft. Yellow. July. Austria.

These woolly-leaved plants with yellow flowers are rather pretty, very hardy, and easily kept in sandy loam mixed with a little peat; though *A. Corsica* thrives best in all sandy peat.

Propagated by lifting the plants in autumn, and cutting them into moderately-sized pieces; replanting them immediately in proper soil.

ARNOPOGON—SHEEP'S BEARD.

Nat. ord., Asteraceæ. *Linn.* Syngenesia æqualis.

GENERIC CHARACTER.—*Involute* one-leaved; tube swollen, eight-parted. *Receptacle* rather naked. *Pappus* feathery, stipitate.

ARNOPOGON DALECHAMPII (Dalechamp's). *Calyx* downy, unarmed; *leaves* runcinately-toothed. 2 ft. Light yellow. July. South of Europe.

A handsome plant, but little known. Requires a deep sandy loam.

Propagated by dividing the plant in March in moderately-sized pieces, and replanting immediately in fresh soil.

ARTEMISIA—WORMWOOD.

Nat. ord., Asteraceæ. *Linn.* Syngenesia æqualis.

GENERIC CHARACTER.—*Involute* imbricate, ovate, or hemispherical. *Receptacle* naked or downy. *Florets* of the ray subulate. *Pappus* none.

ARTEMISIA ALPINA (alpine). *Stem* herbaceous, simple; *leaves* palmate, much cut, covered with white floss; *peduncles* axillary, one-flowered, nodding; *flowers* globular. 1 ft. Yellow, green. July. Caucasus.

A. MARSHALLIANA (Marschall's). *Leaves* smooth, lanceolate, narrowed at each end; heads roundish, stalked, erect; involucre scales membranaceous at the edge. 1 ft. Yellow. July. Caucasus.

A. NORVEGICA (Norwegian). *Stem* adscending, rather branched; *leaves* rather downy; stem-leaves pinnate, leaflets linear-acute; *flowers* globose, stalked, nodding. 1 ft. Yellow. July. Norway.

A. PALLASII (Pallas's). *Stem* adscending, slightly branched; *leaves* covered with silky down; stem-leaves pinnate, leaflets linear-acute; bracts simple; *flowers* globose, stalked, rather erect. 1 ft. Yellow, green. July. Siberia.

A. PONTICA (Roman). *Leaves* downy beneath; stem-leaves

bi-pinnate, leaflets linear; *flowers* roundish, stalked, nodding; *receptacle* naked. 3 ft. Yellow. September. Austria.

A. SERICEA (silky-leaved). *Stem* ascending, rather branched; *leaves* covered with silky down; *stem-leaves* pinnate, leaflets tri-partite, linear-acuminate; *bracts* pinnated; *flowers* globose, nodding. 2 ft. White. June. Siberia.

A. TAURICA (Taurian). *Stem* erect; *leaves* hoary; lower leaves bi-pinnate; upper leaves pinnate; leaflets linear-filiform; *flowers* oblong, sessile. 1 ft. White, green. July. Tauria.

A. ——— VULGARIS (Common). There is a variety of this with leaves white-spotted. It loses its character in fertile soil.

A. WULFENII (Wulfen's). 1 ft. Yellow, green. July. Switzerland.

This is a rather large genus with not very showy flowers. It contains the common Southernwood and Wormwood. I have selected a few of the best that are suitable for an extensive flower-garden border. Any common garden soil will suit them, and they are very hardy.

Propagated by division of the plants in March or October in the usual way.

ARUNDO—REED.

Nat. ord., Graminaceæ. Linn. Triandria Digynia.

GENERIC CHARACTER.—*Glume* naked, beardless, two-valved; valves wrapping up the paleæ, which are two-bearded, and surrounded by bristles. *Seed* enclosed in the paleæ.

ARUNDO DONAX (cultivated). *Glumes* three to six-flowered; *florets* as long as the glumes; *stem* woody at the base. 10 ft. July. S. America. There is a variegated, or striped-leaved, variety of this, *A. donax versicolor*. This noble grass-like plant may be cultivated with good effect in masses in moist places.

Propagated by parting the roots early in the spring before they commence growing. The stems die down in the autumn, and the stools require to be mulched over to protect them from the frosts.

ASARUM—ASARABACCA.

Nat. ord., Aristolochiaceæ. Linn. Dodecandria Monogynia.

GENERIC CHARACTER.—*Calyx* three or four-cleft, placed on the germ. *Corolla* none. *Capsule* coriaceous, crowned.

ASARUM ARIFOLIUM (Arum-leaved). *Leaves* sub-hastate, cordate; *calyx* tubular, shortly three-cleft. 1 ft. Brown. July. North America.

A. CANADENSE (Canadian). *Leaves* kidney-shaped, mucronate. 1 ft. Brown. June. Canada.

A. EUROPEUM (European). *Leaves* kidney-shaped, obtuse, in pairs. 1 ft. Purple. May. England.

A. GRANDIFOLIUM (large-leaved). This is the same as *A. Canadense*. 1 ft. Brown. May. N. America.

A. VIRGINICUM (Virginian). *Leaves* cordate, blunt, smooth-stalked. These are veined and spotted on their upper surface, like *Cyclamen autumnale*. 1 ft. Brown. May. Virginia.

The leaves of this genus are its greatest ornament; being ever green, they keep the borders furnished with foliage through winter. The flowers are very curious. They will thrive better if a little peat be added to the soil.

Propagated by dividing the plants in March, and replanting the divisions immediately in fresh soil.

T. APPLEBY.

(To be continued.)

THE SCIENCE OF GARDENING.

(Continued from page 354.)

IMMEDIATELY beneath the bark is situated the *wood*, which forms the chief bulk of trees and shrubs. In all exogens it is formed of concentric layers, one of which at least is added annually. These layers are formed of a tissue of longitudinal fibres resembling network, the interstices of which are filled up with soluble matter, differing in each vegetable genus, but closely resembling its parenchyma. The layer immediately in contact with the bark is the softest and palest in colour, and thence is called the *albumnum*. It is in this that the vessels which convey the sap, from the roots to the leaves are chiefly situated. This layer is annually renewed, that of the previous year becoming more complete wood. Although the chief part of the sap-vessels, as just observed, is situated in the albumnum, yet others, though more scantily, are dispersed through other parts of the wood. Wherever situated, they extend from the extremity of the minutest root to the leaves.

In some trees, and especially in those which are not very hard, the line of demarcation of the wood and albumnum is hardly perceptible; we see this in the Poplar, the Willow, the Chestnut the Bombax, &c.; on the contrary, in hard woods, this line is readily distinguished by the hardness and colour of the organs; thus, in the Ebony, the wood is, as every one knows, perfectly black, whilst the albumnum is white; in *Cercis siliquastrum* the wood is yellow and the albumnum white; in *Phillyrea* the wood is brownish yellow, the albumnum white; but in this last species the perfect wood is only found in very old trees; and as many as fifty layers of the albumnum were remarked by De Candolle in *Phillyreas* about 200 years old.

The relation of the thickness of the albumnum to the wood varies in different species and different individuals, not only from the preceding causes, but, moreover, from the age of the tree. Thus, the albumnum is equal to the wood in an oak six inches in diameter; it is as two to seven in a trunk of a foot; as one to nine in one of two feet, &c.; still these proportions given by Duhamel are very variable. Mustel has observed that different parts of the same layer of the albumnum may be transformed into perfect wood at different periods; thus, he has seen some Oaks which had, on one side, fourteen layers of the albumnum, on the other, twenty; or, on one side seven, on the other twenty-two, &c. The layers of the albumnum are almost always thicker on the side where they are less numerous; that is to say, in other terms, that when a root meets a good stratum of earth, it nourishes the corresponding part of the tree more abundantly. Those parts which are most nourished have the woody layers thicker, and they arrive more quickly to the state of perfect wood, whilst the roots which fall in with poor strata badly nourish the corresponding parts; and, consequently, these have the layers thinner, and they remain a longer time before they attain their complete hardness.

All workmen know very well that the albumnum is less solid than the wood, and take care to separate it from the latter when they use it for building purposes, &c. Buffon, who performed with Duhamel some important experiments upon this subject, found that in the Oak the difference of solidity of the albumnum and the wood, is as six to seven. But the principal cause for which the albumnum is carefully rejected from the wood in building, is that on account of its looser tissue it is more liable than the latter to be affected by moisture, worms, and insects. We often find stakes placed in wet situations, with the albumnum either entirely decayed, or perceptibly changed, while the wood is still very sound.—(*A. De Candolle's Organography*).

The idea that the annular layer of wood is rendered more dense and firm by severe winters is denied by reason, and demonstrated to be false by actual observation. The layers are thickest on those sides of a tree where the largest roots and branches occur, and are throughout of a greater size in such years as afford the most genial period to vegetation.

Each of the woody layers is, during its first year, a kind of very elongated cone, which surrounds the pith; during the second year it forms a second cone, which surrounds the terminal prolongation of the pith, and which is prolonged at the base in such a manner as to cover over the cone of the first year; and thus cone after cone is formed in succession, until the destruction of the trunk. It evidently results from this, that each cone, or woody layer, only increases during the first year of its life; and that it is afterwards covered over by subsequent cones, and is, as it were, shut up by them in such a manner as not to be able to lengthen or thicken any more; it remains, after some years, in an almost passive state, and does not seem any longer to form part of the living organs of the plant. It results from this state of things, that the woody layers serve successively as coverings to each other; and if one of them has received any injury—as, by the action of frost, having letters cut in its tissue, or cavities hollowed out in its thickness, having nails driven into it, &c.—all these injuries, covered by subsequent layers, may be again found after any number of years; experiments have demonstrated this, and it serves to explain several facts to which marvellous ideas would be attached. Thus the layers of the albumnum, being full of sap, are liable to be frozen when the cold is very intense. When this accident takes place, and the frost does not reach the fiber and the albumnum, the tree continues to live; the frozen layer is covered over by a sound one—afterwards by several others; and thus covered, it is found in the centre of trees; this accident is named in French, *Gélivure*. We can, by counting the number of layers formed since the accident took place, know in what year it happened. Thus, in 1800, M. De Candolle had

cut down in the Forest of Fontainebleau, a trunk of a Juniper (*Juniperus communis*), which was found to present, near its centre, a layer which had been affected by frost, covered over by ninety-two woody layers, and which dated, therefore, from the severe winter of 1709.

An inscription written upon the trunk of a tree, and which penetrates to the alburnum, is covered over by the new woody layers, and may be found entire as long as that part of the trunk remains so. It was thus that Reisel found, in 1675, some capital letters in the middle of a Beech; that Mayer, in 1688, found in the woody body of a Beech a kind of sculpture representing a gallows, and a person hanging; that Albrecht, in 1697, found in the same tree the letter H, surmounted by a cross; that Adami found, under nineteen layers of the alburnum, the letters J. C. H. M. It is thus that in certain trees in India there have been found inscriptions in the Portuguese language, which had been written there some centuries before, when the country was discovered by those navigators. It is thus that different spots, or regular stars, have been artificially formed in the middle of several trees. Two Mémoires by Fougereux de Bondaroy, inserted among those of the Académie de Paris for 1777, may be particularly consulted upon this subject.

When any accidental cause, as the hand of man, the teeth of animals, or simply a morbid change, hollows out a cavity in the alburnum, the orifice of which is sufficiently narrow to be covered over by the subsequent woody layers, the cavity is preserved entire, as well as any object shut up in it. De Candolle found in the middle of a large piece of Oak, which appeared perfectly sound, a cavity partly filled with nuts and acorns, which had probably been carried there by dormice or squirrels before it was covered over by new woody layers. In the same manner bones, stones, &c., are found in similar cavities.

When a nail is driven into a tree, so as to reach the alburnum, it remains fixed, and, by degrees, the new woody layers which are formed around it surround its base, so that it appears as if it had been driven into them; sooner or later it is entirely covered over: it is thus that we find nails and other instruments, or the horns of stags, infixed, or completely sunk, in the wood of exogenous trees. It is by the same process that the base of the Mistletoe appears each year to sink into the tree, because the woody layers rise up around it.—(*A. De Candolle's Organography.*)

Wood is consolidated fastest in those plants which are most freely exposed to the influence of light and air, and those plants grow in height the slowest. This teaches a lesson to the gardener he often may remember with advantage; for it is often desirable to have specimens of the same shrub, varying in height; and he may often increase their stature, yet preserve them in health, by keeping them in a moist, shaded locality, during the early stages of growth; and he may as certainly render them more dwarf, by exposing them to a drier, and the brightest atmosphere that they will healthily endure, and he can command. By the former treatment we have seen Heliotropes clustering round the pillars of a conservatory to the height of fifteen feet.

From the extension of the woody fibre being greater and longer continued on one side of a stem or branch than on its opposite side, it frequently becomes contorted. Gardeners usually endeavour to remedy this by making an incision on the inner side of the curvature, and then employing force to restore it to a rectilinear form, causing a gaping wound, and mostly failing to attain the object. If the incision be made on the outer side of the curve, thus dividing the woody fibres that continue to elongate most rapidly, the branch or stem, with but slight assistance, will recover its due form, and there will be no open wound.

From the fact that there is invariably more woody matter deposited on the side of a stem or branch which is most exposed to the air and light, gardeners have explained to them why those sides of their trained trees which are nearest the wall, ripen, as they term it, most slowly; and are benefited by being loosened from the wall so soon as they are relieved from their fruit. If they require any demonstration that this explanation is correct, they need only examine the trees in clumps and avenues; their external sides will be found to enlarge much more rapidly than their internal or most shaded sides.

Although the sap rises chiefly through the alburnum, yet it is not at all certain that the interior wood has become entirely inert. Indeed, the facts of its long continuing to increase in density, to change its colour, and to retain much both of liquid and gaseous matters, are evidences to the contrary.

These gaseous substances, according to Boucherie, are in some cases equal in bulk to one-twentieth part of the entire

trunk of the tree in which they exist. They, probably, move upwards along with the sap, and are more or less completely discharged into the atmosphere through the pores of the leaves. That these gaseous substances not only differ in quantity, but in kind also with the age and species of the tree, and with the season of the year, may be considered as almost amounting to a proof that they have not been inhaled directly by the roots, but are the result of chemical decompositions which have taken place in the stem itself, as the sap mounted upwards towards the leaves.

We have seen that the roots exercise a kind of discriminating power in admitting to the circulation of the plant the various substances which are present in the soil. The vessels of the stem exhibit an analogous power of admitting or rejecting the solutions of different substances into which they may be immersed. Thus Boucherie states that, when the trunks of several trees of the same species are cut off above the roots, and the lower extremities are immediately plunged into solutions of different substances,—some of these solutions will quickly ascend into, and penetrate the entire substance of, the tree immersed in them, while others will not be admitted at all, or with extreme slowness only, by the vessels of the stems to which they are respectively presented. On the other hand, that which is rejected by one species of tree will be readily admitted by another. Whether this partial stoppage of certain substances, or total refusal to admit them, is a mere contractile effort on the part of the vessels, or is the result of a chemical change of the substance itself, or of the fibre or sap with which it comes into contact, by which change their exclusion is effected or resisted, does not as yet clearly appear. That it does not depend upon the lightness and porosity of the wood, as might be supposed, is shown by the observation that the Poplar is less easily penetrated in this way than the Beech, and the Willow than the Pear tree, the Maple, or the Plane.—(*Johnston's Lectures on Agricultural Chemistry.*)

Young wood contains more moisture and cellular tissue than old wood; in the latter the moisture and the cells being gradually filled with woody matter, or lignum. Chemists have endeavoured to analyse, separated the cellular tissue and the woody matter, but with no satisfactory results, inasmuch as that there is reason to believe that soaking the woods in caustic potash, and other corrosive liquids, formed the compounds which they detected during their investigations. We, therefore, give the analyses of the woods, without any attempt to distinguish one of their parts from another; nor in these analyses is there any allowance made for their saline components. These, however, do not exceed two parts in every thousand, and the oxygen in the following table may be reduced that much. The analyses were made in Liebig's laboratory.—(*Annal. de Pharm.*, xvii. 139.)

Woods.	Carbon.	Hydrogen	Oxygen.
Oak (<i>Quercus robur</i>)	49.432	6.069	44.499
Beech, red (<i>Fagus sylvatica</i>)	48.184	6.277	45.539
Beech, white	48.533	6.301	45.166
Birch (<i>Betula alba</i>)	48.602	6.375	45.023
Alder (<i>Betula alnus</i>)	49.148	6.217	44.587
Larch (<i>Pinus larix</i>)	50.106	6.310	43.584
Spruce Fir (<i>Pinus abies</i>)	49.946	6.407	43.647
Silver Fir (<i>P. picea</i>)	49.591	6.384	44.025
Scotch Fir (<i>P. sylvestris</i>)	49.937	6.250	43.813
Wild Plum (<i>Prunus domestica</i>)	49.311	5.964	44.725
Wild Cherry (<i>Prunus cerasus</i>)	48.824	6.276	44.900
Crab Apple (<i>Pyrus malus</i>)	48.902	6.267	44.831
Wild Pear (<i>Pyrus communis</i>)	49.395	6.351	44.254
Ebony (<i>Diospyros ebenum</i>)	49.838	5.352	44.810
Box (<i>Buxus sempervirens</i>)	49.368	6.521	44.111
Cork-barked Elm (<i>Ulmus suberosa</i>)	50.186	6.425	43.389
Black Poplar (<i>Populus nigra</i>)	49.699	6.312	43.989
Ash (<i>Fraxinus excelsior</i>)	49.356	6.075	44.569
Walnut (<i>Juglans regia</i>)	49.113	6.443	44.444
Locust (<i>Robinia pseudacacia</i>)	48.669	6.272	45.059
Lime (<i>Tilia Europaea</i>)	49.408	6.861	43.731
Horse-chestnut (<i>Esculus hippocastanum</i>)	49.077	6.714	44.209
Crack Willow (<i>Salix fragilis</i>)	48.839	6.360	44.801
Maple (<i>Acer campestre</i>)	49.803	6.307	43.890

In the centre of the wood is situated the *medulla* or *pith*. It only exists in dicotyledonous plants; and in them is a soft, cellular, membranous substance, juicy when young, and extending from the ends of the roots to the extremities of the branches. In the first stages of vegetation it occupies but a small space: it gradually dilates; and in shoots of a year old, and in young trees, it is of considerable diameter; as their age increases it gradually diminishes, and at length becomes totally or nearly extinct, its place being occupied by perfect wood. Its functions are little understood. It appears to be connected with the pro-

duction of young shoots and buds; for, as soon as it becomes extinct in a branch, that member loses, in a great degree, the power of producing them; that power apparently being transferred to those younger branches which still retain their pith in perfection.

Much has been said concerning the function of the pith, and many opinions hazarded. In the earlier ages of phytological inquiry, or rather in ages when phytological opinions were taken up without inquiry, one of the vulgar errors of the time seems to have been an opinion that the function of the pith was that of generating the stone of fruit, and that if a Plum tree were to be deprived of its pith, it would produce fruit without a stone. This opinion receives some countenance from Evelyn (*Pomona*, chap. i.), but we presume that it is now exploded. Another early opinion is that by which the pith was regarded as being analogous to the brain and heart of animals; though we cannot see in what respect it is analogous to either. Malpighi believed it to be, like the cellular tissue, the viscera in which the sap is elaborated for the nourishment of the plant, and the protrusion of future buds. Magnol thought that it produces the flower and fruit, but not the wood. Duhamel thought it was not destined to perform any important function at all in the vegetable economy; and Linnaeus revived the old doctrine of its analogy to the brain and spinal marrow. Thus all was uncertainty or contradiction among the earlier phytologists with regard to the function of the pith; and we believe that no function has been yet assigned to it, even among modern phytologists, calculated to do away all doubt.

Mr. Knight, in one of his papers published in the "Philosophical Transactions" for 1801, regards it as destined by Nature to be a reservoir of moisture to supply the leaves when exhausted by excess of perspiration; which opinion Sir J. E. Smith combated, contending that the cause assigned is wholly inadequate to the effect, as the moisture of the pith would, in many cases, be insufficient to supply even one hour's perspiration of a single leaf. Thus he overthrows the hypothesis of Mr. Knight; but we cannot think that he succeeds in establishing his own, which is merely a modification of that of Linnaeus, by which he regards the pith, not as a source of nourishment, but as a reservoir of vital energy or life, analogous to the spinal marrow or nerves of animals. Yet surely the analogy will not hold good. If the spinal marrow is injured, the parts below are immediately paralysed; and if it is broken the animal dies; but Mr. Knight, after Theophrastus, has shown that a portion of the pith may be abstracted from the shoot, so as to occasion a disruption of continuity, without doing any material injury to the plant.

When the functions of the pith, whatever they may be, have ceased, nothing remains but a mass of the purest cellular tissue, so light and so full of cells as usually to float even on the surface of alcohol (*spirits of wine*). Dr. John endeavoured to establish it as a peculiar vegetable principle, under the name of *Medullius*, and he chose as examples, among others, the pith of the Sunflower (*Helianthus annuus*), and that of the Lilac (*Syringa vulgaris*). He says its characteristics are being insoluble in water, ether, alcohol, and oils; being destitute of taste and smell; being soluble in nitric acid, and thereby furnishing oxalic acid; furnishing ammonia when distilled, and leaving a charcoal having a bronzy metallic lustre (*Chemische Tabellen der Pflanzen Analyse*). But nearly all these characteristics are furnished by cotton and other mere woody fibres.

The stem is by no means an essential part of the plant, since many are destitute of it; to such trees as naturally are gifted with one, it is somewhat injurious to prevent its formation. Standard fruit trees, under similar circumstances of soil, season, and culture, generally produce finer-flavoured fruit than either dwarf standards or espaliers. This fact appears to be accounted for by the discoveries of the indefatigable Knight, which evince that plants, during the latter part of the summer, are employed in preparing nourishment for the production of the foliage and blossom in the succeeding spring; this nourishment is perfected and deposited in the alburnum, and mixes with the sap during its ascent in that season. Of a consequence it is found to increase in density proportionate to the height at which it is extracted.—J.

(To be continued.)

SENDING BULBS TO AUSTRALIA.

"I have a lot of bulbs in the ground at present, consisting of Lilliums, Narcissuses, Irises, &c., which I wish to send by a friend

to Australia in April or May next year. Would it do to lift them just now, and store them in sand during winter; as, if I allow them to remain where they are, some of them will be flowering at that period?"—JAMES MILNE.

[Your plan will not answer at all. Yours, and all our winter and spring-growing bulbs, will not do if they are packed any day from the end of August to the first of June. If the bulbs could be sent in April, the Japan Lilies would do, and only then, to be sent in November to the beginning of January. The moment any bulb ceases growing and is dried a little is the right time to send. Keeping bulbs dormant artificially spoils them even at home; and it cannot succeed for sending them so far off.]

VINE-GRAFTING—TRAINING YOUNG WALL TREES.

"First. Is it possible to bud, graft, or march a *Black Hamburgh* Vine on a *Cannon Hall Muscat*, so as to have a cane of each on the same root, both producing fruit together, black and white. I am aware they both require heat, and the *Muscat* the most?"

"Second. I have Peach, Nectarine, and Apricot trees planted on a south-east wall, maiden plants from the nursery last autumn. They were cut rather close back last spring, and have now made four or five shoots each, from three to four feet long, with laterals half their length. Should I cut the laterals out, or lay them in? Should the leaders be shortened again or not, and how far apart should the leaders be trained?"

"Third. Is *Hooper's Seedling* Strawberry a better cropper than *Keens' Seedling*? and if it is, where can plants of it be obtained?"—A LOVER OF THE GARDEN.

[1. You could not have been reading our pages attentively, or you would have found that there would be little difficulty in grafting or inarching your Vine, and having as many sorts on one root as you would wish. In the present instance we do not see the propriety of the experiment, as the *Cannon Hall Muscat* wants more heat than would be good for the *Hamburgh*, though they are frequently seen good side by side. To please you, we will just advert to the simplicities of Vine-grafting; the operation cannot well be performed unless the Vine is at rest, or a branch has been cut back when in full leaf, and, consequently, all danger of bleeding past. In the first case the stock and the scion must be in a state of rest, and the best time to perform the operation, is just a week or two before, naturally or otherwise, the sap in the Vine will begin to flow. By the second mode the scion must be retarded and kept in a damp place to secure its vitality. When the leaves of a stem, or a shoot, are unfolded, the flow of the sap is over, and there will be no bleeding when the stem or shoot is cut. The scion being put on such a shoot in any of the usual ways, a union is generally quickly effected. Inarching is effected by bringing a plant in a pot, in a growing state, and joining the liber, or inner bark, of the shoot, for a couple of inches or so, to the liber of the young shoot of the stock, and severing the shoot from the pot when the union is effected, and cutting back the shoot of the stock above the junction, that the strength may be thrown into the new inarched shoot. In particular cases, we would prefer grafting when the Vine and the scion were in a state of rest, and starting a bud of the sort desired in a hot-bed a little before, and growing the plant vigorously. Then, supposing the graft should fail, some young shoots are sure to break from the stem below the grafted part. Leave the best one of these, and in two or three months inarch it with the young Vine in the pot. You will thus have two strings to your bow, if the first should fail.

2. We would leave shoots and laterals alone now, provided there is room for the foliage of the latter to be fully exposed, choosing those only that come from the sides of the main-shoots, and merely nipping out, or off, the points of main-shoots and laterals. This will tend to arrest mere growth, and hasten the ripening process. If the main-shoots are well ripened at the end of autumn to near their point, there is no necessity for cutting them back further in spring than is necessary for securing well-ripened wood. If the laterals then show fruit-buds, and they are well ripened for a part of their length, to that length they should be cut back in spring. If so green as to show no fruit-buds, it would be as well to cut them back to the last wood-bud, which will be close to the main-shoot, and you will be sure to have a shoot from that place during summer, and many more

than you will want from the main-shoots. If these main-shoots are well ripened, it is waste of time to cut them back too much.

3. We have met with no Strawberry of the same size that surpasses *Keens' Seedling* in productiveness. *Hooper's Seedling* is as good a cropper, and rather later. It may be obtained of any London nurseryman. We gave the name of the leaf last week,]

SCARLET GERANIUMS AND HYDRANGEAS GROWING TOO STRONG, AND TAKING UP FOR THE WINTER.

"LEILA" must be aware that it is contrary to our rules for her, or for any one, to send inquiries privately to our coadjutors. Were such a practice permitted, such contributors would be obliged to withhold their names and addresses, and thus the public would lose a great guarantee of trustworthiness. Mr. Fish has forwarded your letter to us, and we insert answers to your queries, though in recent volumes full information has been given upon the very subject.

1. The large scarlet Geranium, plunged in the ground in a pot and that has bloomed so well, we would lift carefully out of the ground before the tops were affected by frost, remove a number of the larger leaves, and keep the plant in the same pot all the winter, taking away as much surface soil as would enable you to give a little water when necessary. It will not be anything against its free blooming next year if most or all of the large leaves drop in winter, and you treat it as described at page 71 of "Window Gardening" to which you refer. In March or April, when the plant has begun to grow, you may give it a larger pot if you think proper; but if it already have a pot a dozen inches or more in diameter, we would remove the surface soil for an inch or so, give a rich top dressing, and keep the plant for another year or two in the same pot. We have three large massive plants in the centre of beds as contrasts now, which have been a mass of bloom from the middle of June and are likely to continue, and which have been in fifteen-inch pots for more than ten years, and never shifted; but they have been top-dressed, and at times had a taste of manure-water. After Christmas they looked like a bundle of faggots—hardly a leaf being on them larger than a fourpenny-piece. Thus resting them causes them to bloom better in our opinion than if they were kept green and growing all the winter. In this faggoty state they need little water.

2. The want of free blooming has, no doubt, been owing to the richness of the beds, as scarlet Geraniums were never more grand than this season. If you had treated all your plants as you did your large ones, and plunged them in pots, you would have had more bloom and less growth. In very dripping districts they are obliged to adopt this mode, and but for the first expense of pots, it is a very good one, as, besides the advantage above referred to, the whole of the plants may be easily lifted and transferred to a shed on the approach of frost, and kept easily over the winter where there is room. One advantage of such a plan, and it is a great one, is, that the plants are sure to be less luxuriant, better ripened, more easily kept over the winter, and ready to bloom profusely again the following summer. Plants two or three years old could thus be used instead of younger plants. Where such a plan cannot be adopted, the soil should be well stirred, but poor except at the surface, and the plants should be planted as shallow as is found sufficient to fix them. The little leaf mould or so at the surface, or round the roots, just gives them a help at starting, and after that the less they have in the way of manure the better it will be for them. A few of the larger leaves might also be removed occasionally.

3. It would be a great pity to lift your scarlets from the beds now, with or without balls, as on this, the 12th of September, we hardly ever saw them look better. If the weather be fine, they may be expected to hold on equally gaud to the middle of October. If taken up roughly about that time, they will require less care in winter than young plants now struck or striking, and will bloom better than the latter; but not better than the former, if now struck, strong, and established. We have little faith in balls for such young plants turned out this season, though we have no doubt the gardener who advised you might be speaking according to his own practice. We find no difficulty even when we take them up roughly—that is, moving them with a fork, and taking what roots we can get, and troubling ourselves nothing about the soil, if we only secure the roots. A little extra trouble, however, would give you an extra chance. Select all the plants

you wish to raise, and about three or four inches from the stem of each insert a sharp trowel, or a strong table-knife, three or four inches deep, and cut half-way round the plant. In three or four days perform the same operation on the other side of the plant. This will cut through the largest roots, and give an impetus to the throwing out fresh fibres nearer the stem. If the plant flag after this, give it a little water. In lifting in your sandy soil, use a nice close-tined fork, and get it well beneath the plants. Never mind if all the soil falls away through your fingers, if you can only prevent the roots breaking and going away with it. The light sandy soil is an advantage in this respect, as you may thus easily save almost every root or fibre. When thus raised, take them to the potting-shed or other place, and just damp the roots to prevent the fibres drying up. Then adopt one of the following two modes according to your circumstances and conveniences.

1st. When you have plenty of room, and can keep your plants green and growing all the winter. In this case, remove about half the larger leaves, leaving those chiefly that are not much larger than a crown-piece, and put each plant into a four or five-inch pot, in light sandy loam containing a sprinkling of leaf mould. Water, and set the plants where they will not be exposed to the mid-day sun, or can be effectually shaded. When necessary preventing flagging, not by repeated soakings of the roots, but by gentle dewings of the foliage. These will make nice plants to look at all the winter and spring, and will only want to be kept from frost, and a due amount of water and air given, as has been frequently explained.

2nd. Where there is little room or conveniences. In this case, when the plants are raised—say, at the end of October, strip off every leaf, and even remove three inches or so of the soft ends of the shoots; dip these ends in a mixture of lime and charcoal-dust to arrest damping and decay, and then pack the roots as closely as possible in sandy soil, neither wet nor dry, in large pots, or boxes, the reduced leafless stems standing above the soil like so many little faggots; and, except a syringe in a very sunny day, if the plants are exposed to the sun, requiring little more care all the winter. A score of fair-sized plants might thus be squeezed into a twelve-inch pot, or even more. Of course, they must not be frosted, nor must the roots be allowed to be dust-dry; but, after the first watering, the roots should never be soaked until the fresh shoots begin to push from the joints in March and April, when the plants must be thinned, and either potted, or planted out where shelter can be given them, until transferred to the flower-beds in May. There may be a few more deaths by this last mode; but the plants in the following year seem to do quite as well as those potted separately, and kept in a growing state all the winter. In that denuded state they will always survive for months without ever seeing the sun, which growing plants, unless in severe weather and when kept at a low temperature, do not like to do. For most little gardens, with small conveniences, we consider the latter rougher mode by far the more useful and suitable. We have been thus plain because new subscribers may not have read ample directions on this subject previously.

4. The Hydrangeas we would treat exactly in the same way as respects curtailing growth, or what, perhaps, would be better, insert a fork within six inches of the plant on one side, and thus ease up the plant on that side directly. In four days or so do the same on the other side, and before there is any risk of frost—say by the end of September, raise the plants by a strong fork on each side, and thus saving as much soil and roots as possible. Transfer them on the spot to a suitable-sized pot, using chiefly rich, stiffish loam. In spring and early summer you will see which of the buds and shoots are likely to bloom best. The variegated is more tender than the common Hydrangea. For such plants the pots should always be at hand, that there may be no risk of losing roots, &c., in transferring them to the potting-shed before potting.—R. FISH.]

A BARREN FIG TREE.

"A constant reader of THE COTTAGE GARDENER wishes to know why a Fig tree in a southern aspect is all leaves, and no fruit? and what treatment the tree ought to have to make it bear?"—LOO.

[The tree is, no doubt, barren from over-luxuriant unripened wood. The first thing to do, and that immediately, is to thin out the wood without shortening the young shoots, so that each shoot left will have its leaves fully exposed to the sun. Then at

the end of September dig a trench round the roots, and try and get underneath, so as to cut through any tap roots. If this tree is old, you may safely cut off all the roots three feet and a half from the wall, and nearer if younger. If you could put stones or flags at the bottom to prevent the roots getting down, all the better. If you secure drainage, and prevent stagnant water, the above mode will do for a large tree, with manure-water when growing. You may prevent the roots extending by various modes. See an article a few weeks ago.]

AUTUMN VINE PRUNING.—AMERICAN BLIGHT.

"I have a vinery which was planted with young Vines about eighteen months ago, they are now clothed with laterals from top to bottom of the rafters. Yet, all useless spray has been carefully removed, every leaf having free access to the sun's rays. Now, I want to know how long those laterals, with their leaves, have a beneficial influence upon the Vine, and what time they assume the character of robbers. The Vine-stems now have a nice brown colour, one half the length of the rafters, and I intend to cut them back at the winter's pruning to one-third their length. Ought I now to cut clear away the laterals from the one-third intended to be left, removing them to the top by degrees, or begin at the top, and by degrees remove them downwards? Or will it tend to the future well-being of the Vine to allow them to ramble freely towards the top of the house, where the ripening is of less consequence?

"I am also very much annoyed with American blight amongst my Apple trees. Is the Gishurst Compound the best remedy for it? I have applied oil in the spring season to the affected parts with some success. Some people tell me it buries itself in the ground in the winter. Is such the case? If not, what is the best winter dressing for its destruction?"—ONE IN DOUBT.

[Under the circumstances you mention, we would stop the point of the Vine-shoot and remove a few laterals every day, beginning at the top of the shoot. If mere strength in the next year's shoot were the sole object we would not do so; but as fruit is wanted on the lower part of the Vine, we consider thorough maturation of the wood of more importance than mere strength of growth. The laterals being all removed in the course of a fortnight or three weeks, we would take a joint or two off from the top of the shoots, so as to remove nearly half the length you mean to cut away before winter. This will concentrate the resources of your plant in the lower part of the stem.

We think Gishurst Compound will be likely to suit your purpose, and so will turpentine and oil, and even clay paint, that will prevent the insects breathing. They lie snugly ensconced in holes and crannies of the stem during the winter, but it is also certain that they get down to the roots; and when that is judged to be the case, the roots should be bared considerably to the cold, and ammoniacal liquor or strong drainage from the dunghill poured over, where you cannot reach with knife or brush.]

HOUSE FOR THE BLACK HAMBURGH MUSCAT.

"In planting a Vine of the *Black Hamburgh Muscat*, would you advise an early or a late house for it?"—B. C.

[We do not think it matters further than that if grown in an early house the fruit has a better chance of securing its very rich saccharine muscat flavour. It will flourish in any house which will suit the *Black Hamburgh*, and does not require the high temperature of the Muscats. We have seen it in perfection at Wrest Park in various houses, and in each case found it to possess the rich peculiar flavour. Had we a choice, however, we would prefer having it ripe by August and September, instead of letting it hang to Christmas.]

A SELECTION OF SPRING CYCLAMENS.

"I want about a dozen pots of Cyclamens to help in furnishing a double window in spring. Which are the best common sorts? and what treatment ought they to receive?"—H. B.

[“A dozen pots of Cyclamens” are about the most domestic and the wisest thing that has been referred to our judgment for the last dozen years at least. “The Cyclamen admits of no rival for gracefulness of outline and beauty in the smallest compass.” Order eight of the most distinct kinds of *Cyclamen Persicum*, and four of the best marked varieties of *Cyclamen Atkinsii*.

They will give you the cream of all the spring novelties in the family. Unless you send to the fountain-head—the firm who introduced these lovely flowers to our notice—the Messrs. Henderson, of the Wellington Road Nursery, do not mention names. Only eight of the one, four of the other. Our own collection consists of ten kinds of *Persicum*; and the following are the best eight of them—common *Persicum*, *album*, *coccineum*, *delicatum*, *punctatum*, *rubrum*, *marginatum*, and *roseum*, all distinct from each other as any plants of the same genus can be. *Rubrum* is our favourite, as being the finest *Cyclamen* in the world; *roseum* next; and the next are all on a par with us. Most teasing it is that we have lost, or never had, the right names of the four best *Atkinsii*; but that breed swallows up *Coum* and *Coum carneum*—a lovely thing, and in cultivation they will all go for *Atkinsii* varieties. One material point in the management of these spring Cyclamens has just been discovered by our coadjutor Mr. Beaton, at the Experimental, which, he says, “stunned” him; but we shall probably hear from him shortly on the point.]

TREATMENT OF CAPE OF GOOD HOPE BULBS.

"I have had three bulbs just given to me. Would you be so kind as to tell me the proper mode of treating them, when to plant them, &c.? They are *Brunsvigia Josephina*, *Hæmanthus pubescens*, and *Cyrtanthus odoratus*. *Brunsvigia Josephina* is a very large bulb, as large as my two hands doubled together. The *Cyrtanthus* is rather smaller. They were all brought from the Cape by a friend. What sized pot should I use for the *Brunsvigia*? and are all these pot bulbs repotted every year?"—ROSE.

[The first thing to do for the Cape bulbs is to search, very carefully, with the point of a knife among the openings and soft covering at the top for the white mealy bugs, which are sure to be found there; and with the long quiet and rest coming home, are sure to be as fat and full as guinea pigs. But guard against the thick creamy juice which the pricking of the knife will cause to ooze out; as the juice of some of those very large bulbs from the Cape is rank poison if it gets into a cut or scratch on the hand. This is just the right time to pot the three kinds of bulbs, and they will do in the same kind of soil—any good loam, with sand enough in it, or added to it, to make it friable. The *Brunsvigia* will want potting only in seven years; the other two once in three years; and all of them in August, or very early in September. All the old soil to be completely shaken from the roots, and fresh loam each time—no dung, leaf mould, or peat, and no artificial heat whatever more than to keep the frost from them. The *Hæmanthus* will stand heat for three or four years running, then split and die. With forcing the *Brunsvigia* might flower once in thirty years or so; in the temperature for Heaths it will bloom as regularly as a *Crocus*, after getting over the journey, which it will take two years to do, if not more. Cover the bulbs up to the neck in the pots, plunge the pots to the rims in damp sand or einders in a cool frame, and do not give one drop of water till you see leaves two inches long, say next March or April. The *Cyrtanthus* of that size can hardly be true to name.]

NEW BOOKS.

GEOLOGY IN THE GARDEN.*—It is not necessary for the student of geological science that he provide himself with his geological bag and hammer, and wander over the length and breadth of the land, before he can make himself familiar with the subject. Wherever his lot may be cast, whether on the chalky slopes of a Hampshire down, or the oolitic combash of the Cotswold hills; were he doomed to be a solitary coastguardsman on the porphyritic promontory of St. Abb's, or a lonely fisherman on some schistose rock in the western Hebrides, he should equally have ample opportunities of studying at least some portion of this “book of Nature.” Dr. Mantell discoursed eloquently and interestingly on a pebble: in the work before us Mr. Eley speaks from his garden, and his subject is a *flint*. What is it? whence is it? and how came it there? And these questions lead the author to a consideration of the whole chalk formation in a style so plain and entertaining as to commend the subject to the study of the most uninitiated in geological science. It is impossible

* *Geology in the Garden: or, the Fossils in the Flint Pebbles*. By Henry Eley, M.A. London: Bell & Daldy.

for us to give even an epitome of the work; but the following extracts will furnish our readers with some idea of the manner in which the subject is treated:—

"Most persons, perhaps, have seen a chalk country—a district in which the subsoil is chalk. This part of the cretaceous formation—chalk, properly so called—which attains in some places a thickness of many hundred feet, may be separated into two great natural divisions—the upper and the lower chalk. Of these the upper is much the softer. It is this which is used as a material for writing upon school-boards, and for other similar purposes. This upper or soft chalk is found marked out into strata, as it were, by layers of flint. Sometimes this flint, which is usually only a few inches in thickness, occurs in an unbroken sheet; but its prevailing condition is that of nodules—lumps of a more or less rounded form, though often of a shape so irregular and grotesque as to have made them a favourite ornament in cottage gardens, where they may be seen neatly whitewashed as edges to the flower-borders. If these chalk flints be broken, we shall find the inside of them agreeing with the pebbles of our surface soil and gravel pits, not only in general appearance, but in fossil contents: we shall see in them the same animal remains, in the same condition, and in the same relative proportions—those species which are the most common in the stones with which we are so familiar, being likewise most abundant in chalk flints. In short, we cannot entertain a doubt that the one kind of stone has some close relation to the other."

* * * * *

"We shall, of course, wish to know the origin of the flint in the chalk, and under what circumstances it enveloped, and often-times converted, as it were, into its own substance the organisms of which it laid hold; for it will be found that, not only many of the fossils that are inside the flints, but some of those that adhere loosely to their white outside coating, have parted with their lime and have appropriated siliceous matter instead. These are questions which have been answered in different ways—always conjecturally, for no satisfactory proof has as yet been offered to show that any of these solutions of the difficulty is the right one. * * * Some geologists and chemists, indeed, suppose that chalk flints in general are zoophytes fossilised by silica; and that the more carefully the flint nodules are examined, the more frequently will traces of organisation be found in them."

Such, then, is Mr. Eley's reply to our question, What is a flint? We have selected it from detached paragraphs merely for the purpose of illustrating the highly-intelligible way in which the information is communicated; but the subject is a lengthy one, and our space does not permit us to enter more fully into it than we have done. Suffice it to say, that we have derived both pleasure and profit from the perusal of this nicely got up, admirably written, and well illustrated volume; and to those of our readers who know nothing of the subject, as much as to those who know something, we recommend it as one of the most readable books on science popularised that we have ever met with.

FARM INSECTS.*—Next to a knowledge of vegetable physiology and chemistry, there is no subject that more requires the attention of the gardener and farmer than entomology. When we consider the myriads of insects which derive their support from the cultivated plants of the garden and farm, in many instances entirely devouring whole crops, it becomes a matter of absolute necessity for those most interested to make themselves acquainted with their forms, transformations, and habits. In the work before us we have the subject treated most fully, both scientifically and practically, by a gentleman who has for a long period devoted his attention to the study of insects, and who is justly associated among the most eminent modern entomologists. The two parts of the work already published are devoted to the insects affecting the Turnip and Cabbage crops; and include the Turnip saw-fly, plant lice (aphides), maggots of flies, surface caterpillars, Turnip gall-weevils, and rove beetles. Every species is separately described; their transformations, many of which are most interesting, are minutely related; and in many instances the text is illustrated with excellent woodcuts of the insects in their various stages of development. The work is also illustrated with beautiful steel engravings from the drawings of Mr. Curtis himself; and having said this much, we feel we are giving an assurance that the work will be ably carried out. It should be in the hands of all cultivators of the soil.

* *Farm Insects: being the Natural History and Economy of the Insects injurious to the Field-crops of Great Britain and Ireland.* By John Curtis, F.L.S. London: Blackie & Son. Parts I. and II.

VARIETIES.

ANTISEPTICS are substances which arrest the putrefactive changes that dead vegetable and animal matter is liable to undergo when exposed to air, warmth, and moisture. Antiseptics are, therefore, antiputrescents; and the term itself indicates the office which the members of the class fulfil (*anti* against, and *septikos* putrefactive). The theory of the action of all antiseptics is, that one or two of the three indispensable conditions of putrefaction—viz., 1, a moderate warmth, 2, access of air, and 3, moisture, are arrested or neutralised. Thus, in the preservation of fish in stores or during transport by railway, they are packed in barrels with ice, which keeps down the temperature; and though air and moisture gain admittance, yet the putrefactive processes cannot proceed. The same preservative power of cold is observed naturally in the discovery of remains of elephants and other animals imbedded in the ice of the polar regions, and which, doubtless, have been locked up there for ages. In a less degree, the influence of cold as an antiseptic is observed in the longer time that meat, eggs, and other animal matters keep fresh in winter than in summer. Again, warmth and moisture may be present, but if the air be excluded putrefaction does not go on. The ordinary mode of preparing preserved meats affords the best illustration of this point. The substance to be preserved is placed in a tin dish covered over, and leaving a very small opening. When the can with its contents is heated, the air which fills up the pores of the solids, and is dissolved in the liquids, is driven off, and, escaping by the aperture in the cover of the dish, leaves the contents devoid of air. If the opening be now closed with solder, the air is kept from returning; and whatever climate the can of preserved meat be sent to, yet so long as the tin casing remains good, and refuses to admit the air, so long will the contents continue wholesome and palatable. The common plan of preserving eggs by rubbing over the shell with tallow or oil, is founded on the principle of filling up the pores of the shell, so as to deny the admission of the air. Moisture is likewise necessary for the process of putrefaction. Thus, if the contents of an egg be thrown out on a plate, and thoroughly dried in an oven, the whole becomes of a hard, horny consistence, and may be kept in this state for years without exhibiting the slightest symptom of passing into a putrescent or rotten condition. In the same way meat may be kept quite fresh by depriving it of moisture. Eggs dried up in this manner require only to be soaked in cold water, and then boiled, when they will present themselves in a condition hardly differing in flavour and taste from an ordinary boiled egg. The more important chemical antiseptics are—Alcohol, wood-spirit, creasote, pitch-oil, coke-oil, sugar, tannic acid, sulphurous acid, common salt, nitre, alum, chloride of zinc, sulphate of copper (blue vitriol), corrosive sublimate, arsenic. The manner in which these antiseptics act is very different.—1. Sulphurous acid acts by combining with the oxygen, and thereby deoxidising the substance. 2. Syrup of sugar acts by combining with the water of the substance to be preserved. 3. Creasote, tannic acid, alum, chloride of zinc, sulphate of copper, corrosive sublimate, and arsenic, are useful in forming compounds with the organic matter, which are not so liable to become putrescent as the uncombined organic substance. 4. Alcohol, wood-spirit, common salt and nitre act in a double way, by combining with the water of the putrescible substance, and by combining with the substance itself, so as to form a more durable compound. Some of the more important uses to which the chemical antiseptics are applied are—1. In the preservation of anatomical specimens, where alcohol, and less often, chloride of zinc, are the agents; 2. In the curing of herring and other fish, where common salt is generally used; 3. In preparing corned or salted meat and tongues, where common salt and nitre are jointly employed; and 4. In the manufacture of size for writing-papers, where the paper-maker uses sulphite of soda or antichlore (containing sulphurous acid) to arrest the decomposition of the scraps of hides used in the manufacture of size. In the preservation of timber, antiseptics are also taken advantage of. The wood is placed in a steam-box, and the air contained in its spores being replaced by steam, the whole casing is closed tight, and allowed to cool, when the steam condenses, and leaves a vacuum in and around the block of the wood. On the introduction thereafter of one of the antiseptics, it finds its way into the innermost pores of the timber. Wood thus prepared is not nearly so liable to decay as it ordinarily is; and the antiseptics seem to act here not only directly in withdrawing water, and forming durable compounds, but in offering a poisonous dose to minute plants and animals which tend to house themselves in the wood. The use of sulphate of copper for this

purpose was suggested by Bonchardat; of corrosive sublimate, by Kyan (hence the process was called *Kyanising*); and of chloride of zinc, by Sir W. Burnett (hence the term *Burnettising*).—(*Chambers's Encyclopædia*.)

SETTLEMENT OF AFRICAN CHRISTIANS.—Next morning, while sitting at our breakfast, of which excellent fruit formed a considerable part, I looked out and saw within a circular fence, at a short distance from the house, eight or ten horses driven round upon a quantity of straw spread over a smooth hard clay floor. This I was informed was their threshing-floor, and thus the corn was trodden out—a process which I afterwards witnessed in many other parts of the colony. During the day we accompanied the missionary and a number of the people to their grazing-ground, corn-lands, gardens, fountains, and different habitations. At the latter we found the goodwife had usually a cup of coffee and cakes, or a dish of Grapes or some other refreshment, waiting our arrival. The cottages, though designated by their owners as only temporary dwellings, were many of them neat and comfortable. All contained a separate and partitioned bedroom; and I was sometimes amused at the accumulation of treasures which the outer room exhibited. Each had a table and chairs, or some ruder kind of seat, frequently the driving-box of a waggon. In one cottage, where we took some refreshment, the end of the room was occupied by two large bins about four feet deep, built up in brickwork from the floor, and filled with excellent wheat, in quantity, I was told, about forty bushels. At one corner of the same room hung the fowling-piece of the master, with powder-horns, and shooting apparatus; at another corner the adze, the axe, and the cross-cut saw; and in a third the spade and the hoe; while chisels, augurs, and small tools were stuck into different parts of the thatch; and on a pole above hung long strips of the dried flesh of the antelope and other beasts. The shelves, in different parts, were occupied with articles of crockery-ware, besides a coffee-pot, and a brass or tin tea-kettle. Beyond these, the skins of kids, or other small animals, converted into bags, with the hair inside, but the legs projecting,—some apparently filled with nails or other valuables,—hung from different parts of the walls. The cooking-place was generally in a low shed outside. The members of this interesting community (Matzie's Rivière, S. Africa), and there were about forty families, both men and women, were all a few years ago slaves. In this condition, however, they had received religious instruction, and had become Christian men and women. Slavery had made them familiar with labour, and this has proved their great advantage. When emancipated, their labour soon brought its return. Christianity taught them prudence in the use of their earnings, and thus they were soon able to buy a few goats, or sheep and oxen. Two or three years ago, eighteen of them, led by the missionary, united in renting this farm of 8000 acres. The cultivation of the farm enabled them to pay the rent punctually; and a year ago they entered, before the constituted authorities, into a legal agreement to purchase it for £4000, to be paid by instalments, with six per cent. interest. One thousand pounds were to be paid in the month of November after our visit, and Mr. Anderson said he had no doubt that the money would be all ready by the specified time. Every one of the landowners possesses a team of oxen, and all but one a waggon. They possess, moreover, a large number of horses, besides cows, sheep, and goats. They have divided the land into twenty parts: Mr. Anderson, who has led them on in every step, taking one part; and they have every prospect of soon beholding the whole their own. The few regulations of the community are simple and judicious. One is, that no intoxicating drink shall be sold in the place. Every one of these men gave his vote at the late election of members to be sent by this district to the South African parliament. I was told that their suffrages were solicited by more than one candidate.—(*Ellis's Madagascar*.)

TRADE CATALOGUES RECEIVED.

A List of Bulbs and other Flower Roots cultivated and imported by E. G. Henderson & Son, Wellington Road, St. John's Wood, autumn, 1859, is a bulky octavo pamphlet of eighty pages, containing lists and descriptions of all cultivated bulbs, whether hardy, half-hardy, or tender. It contains, also, a list of select herbaceous plants, Pæonias, Hollyhocks, Pansies, &c.

A Catalogue of Hyacinths and other Dutch and English Flower Roots, by William Rollison & Sons, Tooting, London, is a broad sheet, containing lists of the best Dutch bulbs judiciously selected.

TO CORRESPONDENTS.

CORONILLA AND ROSE CULTURE (L. B. R.).—The treatment of the Coronilla has been frequently given. Grow it in peat and loam, and, as the plant gets older, give chiefly the latter. Give plenty of water, unless in the dead of winter. From November to April a medium night temperature of from 40° to 45°, if you wish it to bloom then; if not to bloom until spring, from 35° to 40° will be enough. In spring give plenty of water and air, and by the end of May give it a sheltered place out of doors until the middle of October. It will stand well in your cold pit with a little protection from severe frost. It might do against the wall of your house with a mat over it in severe weather. The same pit will do for tender Roses in pots. Your best plan would be to send to a Rose grower for six of the best kinds, stating the size you wish, as the price will depend on that. That will secure you a good beginning. Roses may be propagated now—all the Chinese, Bourbons, Noisettes, Perpetuals, &c., by cuttings; Damask, Moss, &c., are best budded in June and July. You may strike lots now of the Manetti stock for that purpose, or secure the wild Rose in November from the hedges. Several full articles have been given in this work on the Rose, and all points of its culture.

PAULOWNIA IMPERIALIS FROM SEED (E. P.).—Unless it were for the curiosity of the practice it is not worth the trouble to grow this tree from seeds, as it might be increased by the roots as fast as Horseradish, and in two months, after the first leaf on a root-cutting has appeared, the plant from that cutting will be stronger, and much older in effect, than a three-year-old seedling. A strong root-cutting, which was made in the Garden of Plants, at Paris, soon after it flowered there in 1840, made a growth of fourteen feet high in one season; the growth was measured for us by an English gentleman; and the first plant of Paulownia which came into England was sent to us by that gentleman from that batch of root-cuttings. If you have good seeds of Paulownia they should be flat, thin, and of little substance; and yet some of them will not vegetate, probably, till the second year. The way to manage them is this:—Keep them in soft paper in a drawer till the middle of next March, then sow them in a 48-pot or pots in light sandy soil, such as would do for any of the flower-garden seeds; put the pots in a cutting-frame, or any slight hotbed, but not on a Cucumber-bed, which would be too hot and too damp for them, unless you were a good gardener, and could see at once if the least danger were at hand. As soon as the seedlings are up, the same treatment as for the little blue Lobelias will do for them till all the Dahlias are planted out; then they may go out after them, out of the pots, and out in or on a very hot wall border; and of course they will want watering for a long while, also to be protected from the frost the first winter, even at Exeter.

COCOA-NUT REFUSE FOR FERNS (H. N. E.).—Mr. Beaton has pledged his credit on the fact that every plant will root faster in this refuse than in anything else. But of all plants, Ferns and dying Orange trees are the soonest benefited by Cocoa-nut refuse, but not Ferns in pots; for all plants in pots Cocoa-nut stuff comes in the place of sand and no more. Instead of sand, we use Cocoa-nut sawdust; for all manner of plants and for drainage, the short fibre we sift out of the sawdust. If your soil is light for the hardy fernery, trench it full two feet deep, then put one foot thick of the refuse all over the ground, and with a fork mix it to the depth of the first twelve inches of the border, which will give half-and-half; and, after plaiting and watering, put full one inch more of it all over the surface. Then, after six months' growth, you may challenge any old fernery within ten miles of you. But if your soil is clay, or very stiff loam, trench only eighteen inches deep for Ferns; drain it as completely as a flower-pot, except the lowest corner for marsh land Ferns—such as the Royal Fern, *Osmunda regalis*. Put one foot of refuse as before, and mix it with the first eight or nine inches; plant and mulch as above. But, remember, if there is a timber or any other large tree near such a fernery, the roots of such tree will most assuredly find out the tempting mixture, and kill the Ferns, or starve them out. The Deodar, the Araucaria, and Wellingtonia root in the refuse as Rhododendrons do in peat; but no peat for a hardy fernery where plenty of the Cocoa-nut refuse can be had—nothing but common soil—stones, blocks, boulders, with Cocoa-nut fibre as above.

BAREN FIG TREE (Old Subscriber).—See what is said in another page to-day.

PANNELL'S BOILER.—We shall be obliged by any one sending the address of the maker of this boiler, Mr. Pannell, late of Chesterfield, to the Rev. H. F. Hall, Datchet, near Windsor.

RIBBON BEDS (A. C. Oakley).—Mr. Beaton tells us he was in St. Paul's Churchyard last week looking at the ribbons there, for suggestions for planting ribbon borders, and not any two of the several customers who called during the time, would, or could, agree as to this or that, or the other style of ribbons to be bought and worn. "Well," thinks he to himself, "suppose I were to choose for all the customers of that ribbon establishment, they would all deery my judgment except one class." Now, what he could not do in St. Paul's Churchyard, he could not do elsewhere. Therefore, he never undertakes to choose ribbons, or plant ribbon-beds, except for "somebody," whose taste he already knows. After all, ribbons take the same range as flower-beds, and we would be the last to lessen that range to the compass of any one capacity. We had the dimensions of many of your plants from another correspondent.

COLOURED GERANIUM LEAVES (Peter Grieve).—We were quite conversant with these leaves, so to speak, before you sent. We had a long talk about them the very day they reached us, with one of those birds which wing their way to all such offices as ours. It roosts over at Hardwick. The three kinds have the best marked colours, certainly, of all that have yet appeared. The question is, will they last so out under a summer sun? No. 1 has a Golden Chain edge, a starry crimson band mixed with brown, and a green and yellow blotched centre, medium size leaf, and very splendid. No. 2 same arrangement, with less crimson. No. 3 the same, with less brown and more crimson. We know one seedling with a lighter ground than these; therefore, not so rich, but it has much more crimson. Only to show, however, in spring, and late in the autumn, yours must be more permanent.

NAMES OF PLANTS (T. C. Atkinson).—Yours is *Statice latifolia*, or Broad-leaved Sea Lavender. (*W. S. E.*).—We cannot be certain of the name of your seedling, but we think it is *Physalis edulis*. (*W. Clarke*).—Your plant is *Diplacus glutinosus*, and is sometimes called *Mimulus glutinosus*. It is a greenhouse plant long since introduced.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

SEPTEMBER 22nd. BRIDGNORTH. *Sec.*, Richard Taylor, Bridgnorth.
 OCTOBER 5th. WESTON-SUPER-MARE. *Sec.*, Mr. R. L. Jones, Weston-super-Mare. Entries close September 23rd.
 OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. *Sec.*, Geo. Griffiths 7, St. Swithin Street, Worcester. Entries close September 24th.
 NOVEMBER 28th, 29th, and 30th, and DECEMBER 1st. BIRMINGHAM. *Sec.*, Mr. J. Morgan, Bingley Hall, Birmingham.
 N.B.—Secretaries will oblige us by sending early copies of their lists.

STOKE-UPON-TRENT POULTRY SHOW.

THIS Show was held on the 13th and 14th inst., in conjunction with the Exhibition of the Staffordshire Agricultural Society. The Society, having existed some sixteen years, has reaped much advantage from experience. Indeed, it is notorious, that very few, if any, local Meetings of a like character are so well carried out.

Although our present remarks will be confined to the poultry department only, it was quite evident from the great number of agriculturists who visited the implement-yard, that a spirit of inquiry into the best and most expeditious modes of carrying out all agricultural operations has been fairly aroused; and the supineness, that only a few years back was so generally admitted as to investigation of new practical farming among those whose very livelihood depended upon its success, has fast given way before the onward movement that has been altogether induced by the annual musters of Societies like the one just concluded at Stoke-upon-Trent. The arrangements for the poultry were excellent, every pen being placed under cover of tents provided expressly for their accommodation.

The pens in which the fowls were exhibited were roomy and convenient, and certainly no effort was withheld to promote their comfort and well-being during the two days they were open for the public inspection. The rule was imperative that *all specimens exhibited must be birds of this season*, save the Ducks, Turkeys, and Geese, these three classes being open to birds of all ages.

It is most satisfactory to state, that not a single attempt was made throughout the whole collection to impose as to the ages of the birds competing, which, undoubtedly, is but too frequently resorted to in the present day. The two gentlemen appointed by the Society to officiate as Judges for the poultry, were Mr. Edward Lowe, of Comberford Mill, near Tamworth, and Mr. Edward Hewitt, of Spark Brook, near Birmingham.

The *Game* classes were of very high character—in fact the birds of Viscount Sandon were such, as, if properly dubbed, will certainly be again heard of among the successful ones at other Meetings; the noble Viscount swept the board of both prizes. It is well here to suggest to exhibitors of Game birds it is high time the earliest of the cockerels were “dubbed,” if intended to be exhibited at autumnal meetings. It was remarkable that only a single cockerel shown at Stoke, a Brown-red, had been, as yet, subjected to this operation, on which so much of their future celebrity as show birds depends. The *Spanish* class held a multiplicity of good chickens. It is very rarely better are met with at the generality of Poultry Shows. In *Grey Dorkings*, the Earl of Harrowby secured all the premiums with birds shown in perfect condition, and extraordinarily well-matched for feather. Although so frequently mentioned in our pages as certain to ensure defeat, in this class were to be found pens otherwise of first-rate excellence, containing both single and rosey combs. These were, of necessity, passed by. Mr. Stretch, of Liverpool, took the premiums for *Cochin* Chickens, with both Buff and Partridge-coloured birds, and, certainly they fully maintained the high character of his breeding. The Golden-spangled and the Golden-pencilled were, undoubtedly, the best varieties shown among the *Hamburghs*.

A most magnificent pen of *Turkeys*, belonging to the Duke of Sutherland, and a pen of equally praiseworthy *Toulouse Geese*, the property of the Hon. W. W. Vernon, stood at the head of their respective classes.

The *Aylesbury* and *Rouen Ducks* were good, the former especially. In the extra class were shown a pen of *White Doves*, which, for purity of plumage and excellent condition, could not be improved. They were universally admired.

The weather was most auspicious, and thanks to the liberality of the railway arrangements throughout there was no lack of

visitors, every coming train bringing large additions to the company assembled.

GAME.—First and Second, Viscount Sandon, Sandon Hill (Black-red). Highly Commended, F. Bagguley, Whittington (Brown-red).

SPANISH.—First, H. T. Latimar, Cobridge. Second, the Duke of Sutherland, Trentham Hall. Commended, P. Broad, Smallthorn, near Cobridge; J. Clews, Walhouse Street, Walsall.

DORKING.—First and Second, the Earl of Harrowby, Sandon Hall (Silver Grey). Commended, Dr. Hewson, Cotou Hill, Stafford (Coloured).

COCHIN-CHINA (any variety).—First and Second, T. Stretch, Marsh Lane, Bootle, Liverpool. Highly Commended, J. Bailey, Shooter's Hill, Longton (Buff).

HAMBURGH (Golden-spangled).—First, J. Leech, Liverpool Road, New-castle. Second, W. Tatton, Leek.

HAMBURGH (Silver-spangled).—First, J. Leech, Liverpool Road, New-castle. Second, Viscount Sandon, Sandon Hall.

HAMBURGH (Golden or Silver-pencilled).—First, W. Tavernor, Aston Hill Farm (Golden-pencilled). Second, Messrs. J. and W. Holland, Sansome Walk, Worcester (Silver-pencilled). Highly Commended, W. Tavernor, Aston Hill Farm (Golden-pencilled).

TURKEYS.—First, the Duke of Sutherland, Trentham (Bronze). Second, J. Adamthwaite, Oak Hill, Tean.

GESE.—First, the Hon. W. W. Vernon, Wolseley Hall (Grey). Second, J. Smith, Ellenhall Park (Grey). Commended, J. Smith, Ellenhall Park (Grey and White); J. Bailey, Shooter's Hill, Longton (Common).

DUCKS.—First, the Earl of Harrowby, Sandon Hall (White Aylesbury). Second, G. Cargey, Sandon Farm (Rouen). Commended, the Lady Bagot, Blithfield Hall (Aylesbury); the Duke of Sutherland, Trentham Hall (Rouen).

EXTRA POULTRY.—Highly Commended, W. D. Kirby, Trentham (two White Doves); H. T. Latimar, Cobridge (Spanish). Commended, the Duke of Sutherland, Trentham Hall (Spot Pigeons).

DUCKWING GAME FOWLS.

I WAS somewhat startled at the description of your correspondent, “W. C. W.’s” Duckwing Game cock in *THE COTTAGE GARDENER* of August 30th. I have seen it somewhere stated that the pure-bred Duckwing should have no coloured feathers on the back. An intimate acquaintance of mine is in possession of a superb Game cock, said to be a pure Duckwing, which is coloured like our finest Dorkings. By telling me through the columns of your interesting paper if the pale back is a fault you will greatly oblige.

Is there any variety of Game fowl of that boasted maroon colour all over the body?—ONE WAVERING BETWIXT TWO OPINIONS.

[There are two Duckwings, the Copper-back or Saddle, and the Silver. The description of “W. C. W.’s” will be correct, as will that of your friend. Both are considered equally pure, but we believe the seniority must rest with the Copper-saddles. We know no breed of copper-coloured Game.]

LARGE PRODUCE OF EGGS.

IN your impression of the 30th August you say, “a clergyman in Yorkshire has a two-year-old hen, Silver Pheasant, which laid on the 21st the sixty-fourth egg of the present season.” I presume you mean from 1st January to that date: if so, I think the following statement will bear comparison with her performance, which I do not consider very great.*

On January 1st of this year, I had five half-bred hens, one rising six years old, and five pullets of last year, out of a Spanish and *Cochin* hen, crossed by a Black *Hamburgh* cock. I killed three hens subsequently, one on 24th March, 21st July, and 30th August respectively, and added another hen at the end of May. Three hens brought up chickens, and the others being occasionally broody, I had sometimes only three or four hens laying at once.

From 1st January to the 31st August, I had 1259 eggs, which will give an average far above the Pheasant hen you mention. I think my present cross is the best for producing eggs I have ever kept, not excepting the Silver-spangled *Hamburgh* which I kept for upwards of two years, although my pullets were bred from my best hen. I think a cross, generally, from a Spanish and *Cochin* hen with a Black *Hamburgh* cock will produce good layers, as, two years ago, I raised a pullet crossed in the same way, and of a hen not remarkable for her laying properties, yet she commenced laying at five months and a half old, and laid 214 eggs in eleven months—that is, I was absent from home a month last year, when her eggs were not put down. This state-

* The produce is very large for a Silver Pheasant (the genuine species), not the Silver-spangled *Hamburgh* sometimes so called.—Eds.

ment may interest some of your numerous readers, who, like myself, keep fowls solely for their eggs, and are desirous of keeping the best layers. Should you think this worthy of a place in your excellent journal, I shall feel obliged by your giving it insertion in your next number. I may here state, the only run my fowls have is a back lane and small yard; in other respects they are well taken care of, having a dry, well-ventilated roosting-home; and I am satisfied that they have done better since I only fed them twice a-day well—one feed with barley and oats, and the other with bran and barleymeal, &c., with potatoes or turnips, taking care that all is picked up quite clean. Those fowls which have rose combs are very similar to the Black Hamburgs, only being larger and lay larger eggs.—T. B., *Douglas, Isle of Man.*

BLUE-RED GAME FOWLS.

"To what breed does a Game cock of the following markings belong, and what coloured hens should match him? His colours are—neck, a bluish-black; breast and tail, lightish lavender; back, light red, with wings of the same colour; bill and legs, yellow. I brought this bird from Ireland this summer, where the strain is termed the blue-red."—J. M. C., *Glasgow.*

[The cock is rightly named a blue-red, or he might be called a brassy-winged blue. All birds of black and blue plumage are prone to throw red feathers on the saddle and wings, sometimes also in the hackle; but this peculiarity is confined to the cocks. Hens to match this cock should be blue with black and gold-striped hackle. As these might, however, be difficult to procure, we should not hesitate to put him to blue or dun hens.]

KEIGHLEY POULTRY SHOW.

THIS Society, which is under the presidency and patronage of the Duke of Devonshire, the Earl of Carlisle, the Earl of Ripon, the Marquis of Harlington, and other distinguished noblemen and gentlemen, held its seventeenth annual Exhibition of poultry in a large field near the town of Keighley, September 7th, when the following premiums were awarded:—

COCHIN-CHINA (any colour).—First, W. Harvey, Corn Exchange, Sheffield. Second, J. Dixon, Bradford. Commended, J. G. Sugden, Eastwood House; S. Robson, Pocklington. **CHICKENS**.—First and Second, W. Harvey, Corn Exchange, Sheffield. Commended, J. G. Sugden, Eastwood House; S. B. Chapman, Aireworth House.

SPANISH.—First, T. Robinson, the Gill, Ulverstone. Second, J. Newton, Silsden. Commended, J. Dixon, Bradford; D. Wilson, Sutton Fields. **CHICKENS**.—First, S. Robson, Pocklington. Second, A. Whitaker, Ad-dingham. Highly Commended, J. Newton, Silsden. Commended, J. Dixon, Bradford; D. Wilson, Sutton Fields.

CHITTAPRATS.—First, J. Dixon, Bradford. Second, W. Maud, Bingley. Highly Commended, S. Haggas, Keighley. **CHICKENS**.—First, H. Mitchell, Keighley. Second, J. Dixon, Bradford. Highly Commended, W. Maud, Bingley.

GOLDEN PHEASANTS.—First, H. Carter, Upperthong. Second, M. H. Broadhead, Stubbing, Holmfirth. (The class generally commended.) **CHICKENS**.—First, M. H. Broadhead, Holmfirth. Second, J. Dixon, Bradford. Third, H. Carter, Upperthong.

HAMBURGH (Golden-pencilled).—First, W. Harvey, Sheffield. Second, W. H. Dyson, Horton. Commended, J. Dixon, Bradford. **CHICKENS**.—First, J. Preston, Allerton. Second, W. Harvey, Sheffield. Highly Commended, S. Binns, Keighley. (Class generally commended.)

HAMBURGH (Silver Pheasant).—First, H. Carter, Upperthong. Second, P. Lee, Skipton. **CHICKENS**.—First, Bird and Beldon, Eccleshill Moor. Second, J. Mitchell, Keighley. (Class generally commended.)

HAMBURGH (Black Pheasant).—First, J. Scott, Skipton. Second, R. Tate, Driffield. **CHICKENS**.—First and Second, W. Maud, Bingley.

POLAND (Golden Pheasant).—First and Second, J. Dixon, Bradford. **CHICKENS**.—First, D. Wilson, Sutton Fields. Second, J. Dixon, Bradford.

POLAND (Silver Pheasant).—First and Second, J. Dixon, Bradford. **CHICKENS**.—First and Second, J. Dixon, Bradford.

DORKING.—First, T. Smith, Halifax. Second, G. Greaves, Pool. **CHICKENS**.—First and Second, T. Smith, Halifax.

GAME.—First, J. Scott, Skipton. Second, Bird and Beldon, Eccleshill Moor. **CHICKENS**.—First, Bird and Beldon, Eccleshill Moor. Second, G. Copley, Heaton. (Class generally commended.)

RANTAMS (Golden or Silver Pheasant).—Prize, J. Bradford. (No competition.)

RANTAMS (Black, White, or Game).—2, J. Tiplady, Shipley. 2, Bird and Beldon, Eccleshill Moor. 2, Alice Laycock, Keighley. (In this and some other classes the competition was so spirited that the Judges divided the amount offered, and instead of giving first and second prizes, awarded two or more second prizes.) **CHICKENS**.—2, J. Tiplady, Shipley. 2, Bird and Beldon, Eccleshill Moor.

ANY DISTINCT BREED.—2, Bird and Beldon, Eccleshill Moor. 2, J. Smith, Keighley. 2, W. Harvey, Corn Exchange, Sheffield. **CHICKENS**.—2, J. Dixon, Bradford. 2, W. Harvey, Corn Exchange, Sheffield. 2, W. Harvey.

DUCKS (Rouen).—First, J. G. Sugden, Eastwood House. Second, T. Robinson, the Gill, Ulverstone. (Class generally commended.)

DUCKS (Aylesbury).—First, S. Utley, Royd House. Second, R. Tate, Driffield. (Class generally commended.)

DUCKLINGS.—First, J. Dixon, Bradford. Second, J. G. Sugden, Eastwood House.

GEES.—First, J. Dixon, Bradford. Second, M. Green, Todley.

TURKEYS.—First, J. Dixon, Bradford. Second, M. Wheelwright, Rip-penden.

There was a large exhibition of poultry, including some very fine birds of all breeds.

Judges—Mr. Smith, of Skelton Grange, near York, and Mr. Nutt, of London.

FATTENING FOWLS—LICE IN CHICKENS.

WOULD you please to say is there any poultry book that gives good receipts for fattening fowls? I have two; but instead of giving practical receipts, they are both filled with quotations either from other authors, or from the ancients. Now, I would, and so would all my class, prefer the experience of a person of sense to all the nonsense which I am sorry to say most of the poultry books are composed of. For instance: I have one before me now which advises wine mixed with bread crumbs as food for young turkeys. Where would poor people, who rear almost all the turkeys that go to market, get wine? If I had wine I would drink it myself, I think.

Is it well to leave sand with chickens in the coop? Mine get a clean bed every day. The coop is carried out of the house twice a-week and well washed, yet they have vermin. Is there any way to prevent that?—A FARMER'S WIFE.

[The only practical work on fattening fowls is by Baily, and to be had at 113, Mount Street, Grosvenor Square, W.]

Your chickens must get the lice from the hens. Let them have the opportunity of a dust-heap, where they can take a bath. It should be either common dust, or wood ashes; and if that is not sufficient, mix a little common black sulphur with the dust—it will kill all vermin. What do you mean by "carried out of the house?" All chickens should be out of doors *always*.]

SPANISH HEN WITH DISEASED THROAT.

ONE of my best Spanish hens is suffering from severe disease in the throat, for which I would feel obliged if you could suggest a remedy. The bird could not take any food, and the breathing became very difficult, attended with a croaking noise; and on examination there was found a thick curd-like lump, which nearly closed her throat, just on the root of the tongue, and on that being removed, a very offensive discharge followed. The bird had a dose of castor oil and Baily's pills; but in the course of a few weeks the same growth has occurred. The bird when first bought in the spring had a peculiarity in breathing, the throat being distended at every breath, but seemed in perfect health.—MARIA.

[The complaint you mention is common to all fowls, but not often met with. It may be always removed in the manner you have mentioned, but it re-appears. It has no stated period for doing so; and if carefully attended to, by which we mean if the bird is watched and not allowed to get out of condition, it may go on for years in comparative health.]

BRETTON (WEST) POULTRY SHOW.

THE twentieth annual Exhibition of the above Society was held September 8th, in the beautiful grounds of W. B. Beaumont, Esq., M.P. West Bretton is a village near Wakefield. The following prizes were awarded:—

SPANISH.—First, J. M. Thompson, Dewsbury. Second, M. Ridgway, Dewsbury. **CHICKENS**.—First and Second, J. M. Thompson, Dewsbury.

DORKING.—First, S. Pickard, Wakefield. **CHICKENS**.—First and Second, H. Himsforth, Lupset Hall.

COCHIN-CHINA.—First, S. Pickard, Wakefield. Second, M. Ridgway, Dewsbury. **CHICKENS**.—First, Rev. J. Bowden, Thurgoland Parsonage, near Sheffield. Second, P. Pickard, Wakefield.

HAMBURGH (Golden-spangled).—First, H. Carter, Upper Thong, Holmfirth. Second, J. Dixon, Bradford. **CHICKENS**.—First, S. Pickard, Wakefield. Second, H. Carter, Upper Thong.

HAMBURGH (Silver-spangled).—First, J. Dixon, Bradford. Second, H. Carter, Upper Thong. **CHICKENS**.—First, H. Carter, Upper Thong. Second, W. D. Hemshall, Huddersfield.

HAMBURGH (Golden-pencilled).—First, J. Dixon, Bradford. Second, W. D. Hemshall. **CHICKENS**.—First and Second, J. Dixon, Bradford.

HAMBURGH (Silver-pencilled).—First and Second, J. Dixon, Bradford. *Chickens*.—Prize, J. Dixon.

POLANDS (Black).—First, J. Dixon, Bradford. Second, T. Battye, Holmbridge, near Huddersfield. *Chickens*.—First, T. Battye. Second, J. Dixon, Bradford.

POLANDS (Golden-spangled).—First and Second, J. Dixon, Bradford. *Chickens*.—Prize, J. Dixon.

POLANDS (Silver-spangled).—First and Second, J. Dixon, Bradford. *Chickens*.—First, J. Dixon. Second, Rev. J. Bowden, Thurgoland Parsonage.

GAME (White and Piles).—Prize, J. Crossland, jun., Wakefield. *Chickens*.—First, J. Wilcock, Thurgoland, near Sheffield. Second, M. Ridgway, Dewsbury.

GAME (Black-breasted and other Reds).—First, Noble and Ineson, Staincliffe. Second, T. Dobbs, Ovenden, Halifax. *Chickens*.—First, J. Dixon. Second, H. Hibblethwaite, Holmfirth.

GAME (Blacks and Brassy-winged except Greys).—First, S. Schofield, Heckmondwike. Second, J. Crossland, Wakefield. *Chickens*.—First and Second, Noble and Ineson.

GAME (Duckwings and other Greys, &c.).—First, Noble and Ineson. Second, J. Crossland. *Chickens*.—First, T. Dodds, Ovenden, Halifax. Second, J. Crossland.

BANTAMS (White).—First, J. Crossland, Wakefield. Second, S. Schofield.

BANTAMS (Black).—First, J. Dixon. Second, M. Ridgway, Dewsbury.

BANTAMS (Gold and Silver-laced).—Prize, J. Dixon, Bradford.

BANTAMS (any other variety).—First and Second, J. Thornton, Heckmondwike, near Leeds.

ANY OTHER DISTINCT BREED.—First and Second, W. D. Hemshall, Huddersfield. *Chickens*.—First, M. Ridgway, Dewsbury. Second, Rev. J. Bowden, Thurgoland Parsonage.

GUINEA FOWLS.—First, W. D. Hemshall. Second, H. Carter.

DUCKS (Aylesbury).—First, Rev. J. Bowden, Thurgoland Parsonage. Second, M. Thompson, Dewsbury.

DUCKS (Rouen).—First, S. Pickard. Second, Rev. J. Bowden.

GEESSE.—First, J. Dixon. Second, J. Fawcett, Wakefield.

TURKEYS.—First, J. Fawcett. Second, G. Wentworth, Woolley Park.

Judges.—Mr. Hutchinson, York; Mr. Jos. Tuley, Keighley.

Secretary.—Mr. J. Richardson, jun., Bretton, near Wakefield.

BEE-KEEPING IN DEVON.—No. XII.

THE HONEY-HARVEST—EXTRAORDINARY SUCCESS OF THE SWARMING SYSTEM—SINGULAR EFFECTS OF EXCESSIVE HEAT—ARTIFICIAL SWARMS—REMOVAL TO THE HEATH AND ITS RESULTS—*APIS LIGUSTICA*.

THE working season having now closed, it is to be hoped that many of the apian readers of THE COTTAGE GARDENER will favour us with the results of the honey-harvest, so far as it may have come under their observation. In this locality it has certainly been by far the best I have ever experienced; and in one instance I have witnessed so great a success under the old swarming system with common straw-hives, that it deserves to be recorded.

A single stock, about half-a-mile from Exeter, has increased to four, the parent hive having swarmed twice, and a swarm having issued from the first swarm. At the beginning of August these four hives weighed—

	lbs.	ozs.
Old stock	29	12
First swarm	37	0
Swarm from ditto	34	8
Second swarm	30	4

131 8

Deduct weight of hives and floorboards 26 8

Net weight 105 0

The following are the results of my own bee-keeping during the past season with four hives:—

No. 1. From this stock an artificial swarm was taken on the 25th May, and placed in a unicombe hive of novel construction, and which I hope at some future time to have the pleasure of describing in the pages of THE COTTAGE GARDENER. Both parent stock and swarm succeeded admirably until the 7th July, when I was unfortunately induced to exhibit them at the Exeter Horticultural Society's Show. Owing to the confinement and heat of the weather, the parent hive was killed outright, and the swarm in the unicombe much weakened, notwithstanding which, the latter worked in a small super, and gave me about 4 lbs. of the whitest possible honeycomb. The Society's bronze medal and a trifling extra prize, formed but an indifferent compensation for my loss. Finding four of the combs which remained attached to the bars crowded with brood and honey, I at once re-stocked the hive with an artificial swarm from No. 4. Singular to relate, all the brood, to the number of many hundreds, issued from the

cells with imperfect wings, and were, consequently, turned out to perish. From this it would appear that the excessive heat which caused four of the combs to collapse, and destroyed the adult bees, operated in a less direct but eventually equally fatal manner on the rising generation. In order to remedy this mischief, I added, on the 25th July, the inhabitants of a condemned hive which stood in a neighbouring garden, and which I expelled by driving. In this case, I was astonished to find comparatively so few bees return to the accustomed spot. Notwithstanding its proximity, the loss was trifling. On the 29th July, this hive was removed to the heath, whence it returned on the 6th September, with an increase of about 7 lbs. Present net weight, 18½ lbs.

No. 2. From this, my strongest stock, I expected great things, but, unfortunately, lost much time in supering. I also erred in giving it too small a box. Owing to these mistakes, the harvest was restricted to about 25 lbs. This hive was conveyed to the heath and returned at the same time as No. 1, having gained 7 lbs. Present weight 20½ lbs.

No. 3 had a full-sized super, and rewarded me with 47 lbs. of excellent honeycomb. Was not taken to the heath, and will, therefore, require feeding. Present weight 13½ lbs.

No. 4. This artificial stock, formed last autumn by driving four condemned cottage-hives, gave me a 10 lb.-glass, which took the third prize at the July Show of the Exeter Horticultural Society, besides the artificial swarm with which I re-stocked my unfortunate No. 1. Has not been removed to the heath, and now weighs 19 lbs.

To these four hives may now be added No. 5 artificially-formed stock with Ligurian queen. Young bees of this species* were first seen in full flight on the 3rd inst., and at this time (9th Sept.) appear pretty numerous, on inspecting the interior of the hive through the windows at the back. Food has been liberally supplied, and the stock now weighs 20½ lbs.

Having thus given a brief *resumé* of my apian operations during the last summer, I am not without hope that others may be induced to follow in this respect the example of—A DEVONSHIRE BEE-KEEPER.

P.S.—I have much pleasure in informing "T. A." that it is my intention to establish two or three stocks of *Apis Ligustica*, and to report progress from time to time in THE COTTAGE GARDENER. I must, however, beg to decline conducting the joint-stock experiment. My inducement to keep bees is the interesting occupation they afford; and I take pleasure in recording my experience in the pages of THE COTTAGE GARDENER. The kindly appreciation of its Editors and the apian portion of its readers and correspondents forms a more than ample reward for my contributions.

APIARIAN NOTES.—No. III.

SEPTEMBER.

THE bee season of 1859 will, in many districts, be remembered by at least some apiarians as a particularly productive one. In this neighbourhood (Exeter) a few, including myself, have met with an unusual amount of success; and yet there are those who complain of their "bad luck" in the non-issue of their swarms. Nor do I consider it to have been a "good swarming year" on the whole. Some few bee-keepers were fortunate in having their swarms early in May, all such have become extremely weighty. With others their stocks, though very populous, and exhibiting the usual symptoms of swarming early, did not throw off their colonies until the middle or end of June, or even later. Fortunately for these last, a second honey-harvest set in, which continued until the end of July; consequently a light hive, even among these late issues, is exceedingly rare. As a case in point I may mention that I purchased a swarm on the 12th of June, which was so small that I did not care to bring it into my own apiary, or transfer it to the box-hive for which it was obtained, and left it under the charge of the cottager, the late owner. It weighed on the 8th of August 22 lbs. nett, which is more than most of the large and early swarms contrived to do in 1858. The bees were certainly fewer in numbers than in many a second swarm. An instance of extraordinary prosperity has occurred in a cottage garden about a mile from this place, in which stood, in the spring, a single cottage-hive. This threw off two swarms, the first of which also swarmed again. On being weighed, the following was the result:—

* I have recently ascertained on undoubted authority that these bees are the true *Apis Ligustica* of Spinola.

The old stock, with hive and board	30 lbs.
The first swarm	37
The issue from the first	30
The last	34½
	<hr/>
	131½

Thus giving 131½ lbs. gross weight, the result of one stock.

In the next paper I hope to give a table of the produce taken from my own apiary, consisting of sixteen hives; but I must now draw the attention of those interested in the study of bees to a few facts which appear by no means of common occurrence.

FACT I.—In the garden of Mr. G. Fox, of Kingsbridge, stood an old straw hive full of combs, but untenanted by bees since the preceding November. There was no honey whatever in the hive. Towards the end of June bees began to visit it; a few score of which remained through the night. On July 6th, bees were flying in and out pretty regularly, *and were storing honey in the old comb*; and not only so, but they actually made a *small bit of new comb*. At no time was there any queen in the butt. The nearest hive was at least a quarter of a mile distant, so that it is evident that the bees of some probably-well-filled stock were using this skep of empty combs as a temporary storehouse. Such instances have been recorded, but are, I should think, very rare.

FACT II.—The same observer states, that in cutting out a few strands in the centre of a straw hive some new and white comb was removed with it, and thrown by. He saw bees visit it, and load their thighs with the wax. He puts this query—"Were they going to work it up for new comb, or use it as propolis?" I have no doubt that it was destined to be worked up into new comb, as I have noticed more than one instance this year of fragments of comb being used for the purpose.

FACT III.—The following account of a swarm's vagaries is rather amusing. A stock belonging to a reverend gentleman of Kingsbridge threw off a fine swarm on Wednesday, June 29th. No one being near to hive them, the bees returned; but, afterwards, a *fine, old, weighty queen*, in the midst of about twenty of her subjects, was discovered on the ground, about midway between the hive and where the swarm clustered. The watcher, a boy, restored her to the hive. Four hours and a half afterwards they again swarmed, were hived, but soon went back. The following day (Thursday), they a third time issued, and divided in two portions—first, a good-sized swarm in a bush near the hive; then a smaller cluster pitched two fields off; while a still smaller lot left the last and settled near it. The owner hived the two clusters in the field, leaving the hive there while he returned to secure the other and larger part of this undoubted first swarm: but, behold, they had all left, and were back in the parent stock! The owner now called in the aid of Mr. G. Fox, who inspected the two united clusters, which, though by no means forming a large swarm, he wished to retain as a stock. On lifting the butt, a *dead young queen* lay on the cloth. Nothing could have delayed swarming so far as weather was concerned, yet this issue of young queens took place on the day following the first issue of the old queen with the first swarm. The new swarm was now placed on the old stock's stand that it might be strengthened, but was removed the following day to its proper position and the old stock reinstated. In the afternoon of that day (Friday), the old stock swarmed again—a very fine swarm, and hived nicely in a clean good hive. The smaller lot was united to them, and they were left apparently contented. At five o'clock the same day, after four hours of quiet, they had all gone back to the stock. On Saturday they swarmed for the last time, pitched in the same place, were hived in the same butt, and, although apparently not so large as before, they remained quiet and worked satisfactorily.

FACT IV.—Bees will, contrary to Huber's assertion, immediately attack and sting to death a strange queen. I introduced a queen at the entrance of my observatory-hive. In one moment she lay quivering in the agonies of death, stung by two bees. Again: a few days since I removed the queen from a box, prior to substituting one of the yellow Ligurian race obtained from Switzerland. I placed the dethroned queen in a tumbler, with but one of her subjects, which died. As I wanted to keep her for a few days, I caught a few bees from another stock, and placed them with her. At first they did not perceive her, but commenced filling themselves with the honey in the glass; but when by accident they came near her, first one, and then another, attacked her with the greatest fury, and the sting of one was quickly fastened in her head, and the other pierced her frequently between the abdomen and thorax. Now, Huber, if I recollect rightly, asserts that bees will surround a queen and starve, or

suffocate, but never sting her to death. In this he is undoubtedly wrong, as three such instances as I have related have now come under my own observation.

In THE COTTAGE GARDENER of June 21st, there appeared a paper by its respected correspondent, "B. and W.," relating how his fourth apiary was established by means of artificial swarms. It would be very gratifying to me, and, doubtless, to many others, if he would give an early report of his success with these hives. I have tried it in one instance this season, prior to the appearance of his paper, but it did not answer so well as the natural swarms of equal weight which I hived at the same time. But this may be accounted for from the probability of the queen being an old one, the stock having never been permitted to throw off a swarm. Nevertheless, this hive, though it appeared to increase but little in population during the summer, was found on its removal from the heath, where it had been located for the past three weeks, to have every comb that was not filled with honey completely full of sealed brood, larva, and eggs. I captured the queen, which was evidently an old one.

It cannot be said that this artificially-made swarm has not answered, as it has given me 8½ lbs. of fine honey, by removal of loaded bars, and has filled its one Stewarton-box; but in comparison with others, and more particularly with a Stewarton-hive, stocked at the same time and which completely filled two boxes, it has neither increased so much in numbers, nor constructed so much comb as they have done. Where it can be safely left to the bees to throw off their swarms naturally, I have no doubt that it is best to do so, as it is very probable that many an old, worn-out queen is, at such a time, got rid of, either by the bees themselves, or by falling helplessly to the ground, as in the previously recorded instance of the swarm's vagaries. The bees re-issue with a young queen, and with vastly improved prospects.

Management for September.—It is too often the practice of apiarians to leave partially-filled hives, whether as supers, nadirs, or collaterals, in open communication with their stocks during the winter. This should never be done. Not only are the bees thereby prevented from maintaining in cold weather a sufficient heat, but the combs in such receptacles become mouldy and offensive, and are often totally unfit for use the following season; therefore, whatever extra box, glass, or hive now remains attached to the stocks should be at once removed; and any which contain empty combs, or but little honey, should be closely tied up in paper or cloths, and kept in a room of equable temperature; when, the following season, they may assist the bees in supplying their proprietor with an abundant harvest.

It is well now to contract all wide entrances a little, to enable the bees to repel more effectually the assaults of wasps, robber-bees, and that pernicious pest the *Tinea mellonella*, or wax-moth, which continues to use every effort to obtain ingress for the purpose of depositing its eggs.

All who can or care to do so will find it interesting to weigh their hives periodically—say once a fortnight, and note the gradual decrease in weight which occurs from the middle of August until April; thus the supply of food can be always pretty correctly ascertained.

Cottagers who have not yet taken up their hives intended for deprivation should do so without delay. If left longer the honey suffers in quality, and does not so readily drain from the combs; nor can it often obtain so good a market price as that which is offered earlier.

As a general rule to those who suffocate their bees, it will be found most profitable to take up the swarms in preference to old stocks, occasionally leaving one or two of the former to supply deficiencies which may occur.—S. BEVAN FOX, *Exeter*.

OUR LETTER BOX.

GOLDEN-PENCILLED HAMBURGH (*A Subscriber*).—The feathers of the pullet are good, but not as good as might be. The ground colour is pale, and the spots, or markings, or pencillings, are irregular. Perhaps you might have chosen a better. A perfect bird should have a fully spiked comb, well piked behind, and the pike inclining upwards. It should be firmly fixed on the head. The hackle should be quite clear. The body accurately pencilled; the deaf ear quite white, and not too large; the legs blue. The feathers from the cock appear good. He differs from the hen in two particulars. He has no pencilling, and his tail should be black, but the sickle feathers should be bronzed at each edge.

REMOVING BEES (X.).—Place the hive on a board, stop up the entrance, enclose the whole in a cloth tied together at the four corners over the top; pass a pole beneath the corners so tied, and let two men, each holding an end of the pole, keeping the step, carry them gently over the three miles. If they are in the old-fashioned straw hive, there is no better cover for it than the common straw hackle, with its lower ends retained round the hive by a hoop.

WEEKLY CALENDAR.

Day of M th	Day of Week.	SEPTEMBER 27—OCTOBER 3, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock afterSun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
27	Tu	Hermannia inflata.	30.273—30.115	66—47	W.	—	55 af 5	47 af 5	37 a 5	1	8 54	270
28	W	Hibiscus multifidus.	30.183—30.030	60—48	N.E.	—	57 5	45 5	56 5	2	9 14	271
29	Th	MICHAELMAS DAY.	30.007—29.725	73—52	W.	.03	58 5	43 5	17 6	3	9 34	272
30	F	Huernia humilis.	29.875—29.572	61—31	W.	—	60 5	40 5	47 6	4	9 54	273
1	S	Erica pulverulenta.	30.019—29.990	62—41	S.W.	—	VI 38 5	27 7	5	10 13	274	
2	SUN	15 SUNDAY AFTER TRINITY.	30.021—29.978	67—47	W.	—	3 6	36 5	19 8	6	10 32	275
3	M	Fuchsias.	30.034—29.959	70—51	S.W.	—	5 6	34 5	21 9	7	10 51	276

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 66.8° and 45.2°, respectively. The greatest heat, 82°, occurred on the 25th, in 1832; and the lowest cold, 29°, on the 20th, in 1856. During the period 121 days were fine, and on 103 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

The plants that have been in the open borders during the summer to be taken up, the roots carefully cut back, and repotted; to be placed in a gentle bottom heat, or in some close place, until they have made fresh roots, the better to resist the vicissitudes of the dull, dreary months of the approaching winter.

CAMELLIAS.—Water to be given carefully, to prevent the dropping of the buds. The late-flowering plants to be thinned of their buds, leaving not more than two buds on each shoot, and retaining the largest and smallest to get a long succession of bloom. The leaves, if necessary, to be washed clean.

CALCEOLARIAS (Herbaceous).—Remove them to a shelf as near the glass as possible, with plenty of air at all favourable opportunities. To be duly supplied with water.

CHINESE PRIMROSES.—Place them as advised for Calceolarias.

CINERARIAS.—Protect them from the ravages of green fly by the application of the Gishurst infallible compound.

FUCHSIAS.—Continue to encourage the late stock for bloom. Seeds may be sown at once, where there is a greenhouse or other means of sheltering them from frost and damp; but if you have no such convenience, it is advisable to postpone the sowing until spring. The seed is separated most easily from the pulp by bruising the berries amongst dry sand, and allowing it to stand in the sun, or in a warm place, until the moisture has evaporated, when the seed and sand will be intermixed, and in a fit state to be sown.

HEATHS.—On fine mornings syringe them, and Epacris and Pimeleas, and give all possible ventilation, both night and day, while the weather continues favourable.

NEW HOLLAND PLANTS.—Place them in situations to enjoy a considerable share of air and light. All luxuriant shoots to be stopped, to maintain symmetry and uniformity of growth. A vigilant eye should be kept upon them almost daily, to see that neither mildew, green fly, nor other such enemies be allowed to injure them.

ORANGE TREES.—If they have been standing out during the summer, the sooner they are returned to their winter quarters the better. Clean the leaves, if necessary, and fresh surface the soil in which they are growing.

SUCCULENTS.—Cacti, Euphorbia, and other such plants to be gradually curtailed in the supply of water as they approach the winter and their season of rest.

TROPEOLUMS.—If any of this beautiful tribe, particularly *T. tricolorum* or *T. Brachyseras* that have flowered early in the season, begin to grow, they should not be checked, but allowed to grow slowly through the winter; but if there is no appearance of growth—which is best for their future success—the roots should be kept dormant, in a cool place, with the soil about them quite dry, and protected from mice.

FORCING-HOUSES.

Continue to make fresh beds as formerly directed, and No. 574.—Vol. XXII. No. 26.

prepare fresh material for successional ones. To ensure success it is advisable never to allow the manure to be put together in a dry state, nor to get too far exhausted, but in that medium state when the strong fermentation has passed off, and a moderate heat is likely to remain in it for some time. The temperature to be kept from 60° to 65°, with the admission of air for several hours daily.

PEACHES.—To remove the leaves from the trees in the early houses it is advisable to shake them daily, and sometimes to brush them gently with a few pieces of birch-spray tied in a bundle. All foreright shoots to be removed, and the trees in the late houses kept free from insects.

PINES.—The suckers and crowns that were potted in the summer months should now be shifted, if they have grown freely during the late fine weather; they should then be plunged in a brisk bottom heat in the succession-house or pit, from which the plants have been removed, to the fruiting-house. Any remaining suckers on the old stools to be taken off, potted, and plunged in a brisk heat in the nursing pit.

VINES.—Where the long-rod system is adopted, the old shoots should be cut down as soon as the fruit is gathered; and, whatever system is adopted, if there are any shoots to remove they should be taken out as soon as they can be spared; the ends of the remaining shoots, if green, to be cut off. Continue to pay strict attention to late Grapes, look over them daily, and cut out every decayed berry.

WILLIAM KEANE.

CRYSTAL PALACE.—15TH SEPTEMBER.

Just one month too late to see the style of gardening in perfection; but that was purposely, in order to see what flowers stand the weather best. This was, also, the first time I ever had a guide, or any one of whom I could learn my lessons about the arrangements and styles of planting. Fortunately, however, the grounds are so well arranged throughout, that any one who can read such information as I required, may very easily do so without asking a single question. Yet, when one reads a most interesting work on divers subjects, like THE COTTAGE GARDENER for instance, he must be very dull indeed if he would not wish to talk over the subject matter of some of the chapters with the authors. Well, to show how much I wished not to be thought thus dull, I spent from 9.45 A.M. to 6.20 P.M. in the grounds that day, having got hold of the Editor himself to be my instructor and my guide. He showed me the plan of the work, the machinery in motion by which the annual editions are "struck off." I was also introduced among the composers, and saw the flying imps. But, more than all, I saw the invisible genii, invisible but to the initiated, whose office it is to keep the minds of all Editors just up above the present point of human knowledge. And I may tell of all that is lawful in our intercourse and conversations; but it is not lawful, at least not in our craft and calling, to tell of what the genii—the intellectual spirits—reveal to us.

In the first place, the Crystal Palace is the largest and

best conservatory in the world; and, in the second place, there is not a larger or better garden and grounds for the purpose in the British empire. Does it not follow; then, that the private machinery by which the yearly faces and fashions of these gardens and grounds are altered and supplied, should stand on a higher level—say a higher principle than that of any other establishment whatever? Certainly; and in the minds of the great body of our intellectual spirits, our first-class patrons, and our most practical gardeners, the propagating and nursery departments at the Crystal Palace are as high in their design, fitness, and requirements, above the run of those in the best private establishments, as the Palace itself is above all other structures of the kind. And certainly, also, the management has been a great mystery to this day; for gardeners, generally, are not a rude class, and would never ask to see anything that was at all known or thought to be private and free from being pryed into.

I itched to see the propagating department of the Crystal Palace from the very first, not from any curiosity of my own, but to be able to satisfy that of thousands of our readers; but I would as soon ask the clergyman of the parish to show me his banker's book as request the Curator of these gardens to show me his ways and means of propagation: and my share of the modest respectability of gardeners was amply rewarded that day, "promiscuously," for I was within two or three yards of the "framing-ground" before I had the least idea of seeing the great mystery.

After finishing the garden, we went to see the success of Sir Joseph Paxton's new, cheap, and portable houses for the gardens of the million. The genius who aspired to excel, and reached the highest bar in the Crystal Palace, has also condescended to the low estate of the poor and ardent amateur, in his back-garden, where we shall leave them for the present, step on through Sir Joseph's compost-yard, and plump on to the potting-shed in the propagating department of the Crystal Palace. Goodness guide us—what a sight! How can I describe it, or my own sensations at the time? I was wholly dumb-founded. I confess I had not the slightest idea of the domestic nature of the place. We have had all the economic contrivances of propagation before us in THE COTTAGE GARDENER except one, and that one the simplest of them all, the one I am just now going to describe.

Eight men and two or three lads could work together in the potting-shed if they were not quarrelsome; but the least row would endanger the fabric and their own lives. The loam, the peat, the sand, and the leaf mould are all that the heart of Adam could desire, before the fall or afterwards. The site is all but the highest point within miles of it—a great advantage in November, and a greater loss in March and April when the wind comes terribly from the east. The "slip" is on a gentle slope—another advantage: it is not one inch wider or a foot longer than is necessary for the different movements, and hardly that. The upper half, next the potting-shed, is entirely covered with "pits" of different widths, of from four to five feet to ten, twelve, or fifteen feet; and if reduced to one standard would count six ranges of pits, each range two hundred feet long and eight feet wide: that is the upper half. In the centre are two parallel pit-houses, span-roofed, and standing south and north. Each house is eighty feet long and fourteen feet wide, with a passage down the centre; the sides of the passage in brickwork as high as the region of the kidneys, then solid on both sides, with ashes or sand to stand pots on. The lower half consists of six ranges of pits, each 120 feet long and nine feet in the clear. Such is the whole capacity of the place. Five only of the lower ranges of pits are in brickwork. The front range is made of two runs of old "wheeling planks" which remained from the navvies' working department—two planks edge on edge at the back, and one plank in front; and all the planks fastened by stakes driven down behind them. The whole of the

top half of six ranges, in two hundred feet each, is made up exactly in the same way of planking. The widest of them have a rail running along the centre of the bed, supported by props; and the long lights rest on the rail and on the front and back planks: then these widths have a flue in front of glazed earthenware pipes, ten inches or a foot in diameter. The narrower pits have only a six-inch-wide lining of dry straw or fern between the planks, and another run of boards six inches from them. The two meridian-houses in the centre are heated with hot water. That is all and every inch of the machinery; and the first sight of it put me in mind, as vivid as lightning, of that at my own command at Shrubland Park all the time I was there. I then was quite sure and certain that the flower gardens at Shrubland Park were the best in the three kingdoms; for the best gardeners from the best places came to see me and told me so. Therefore I am now in a position to prove that the best and most extensively planted out garden in the kingdom now, as then, is supplied and kept up with just the simplest and least expensive conveniences that can be adopted by the poorest cottager in the land.

But the number of plants that are propagated here every season is immense; and one instance will prove that it is so. Take, for instance, *Mangle's Variegated Geranium*, cuttings of which are struck in boxes in one side of one of the two houses. The boxes are all of one size, three feet six inches long, one foot wide, and three inches deep inside. They are filled with light soil and covered with sand; each box holds 132 cuttings, which remain in the same box all the winter, to be potted off at the end of February or early in March. There are eighty of these boxes filled with *Mangle's*: then 132 cuttings in one box multiplied by 80 boxes give 10,560 plants. From that to 12,000 are the annual stock of this one kind.

All the Scarlet kinds of Geraniums, with the exception of some of the Variegated kinds, are just as we recommend in THE COTTAGE GARDENER. In those plank-pits, full in the sun and no glass on, some one hundred thousand of them were well rooted by the middle of September. They are put in as thick as they would stand, for saving room; and these were then being forked up, with a small hand-fork, to save the roots and to be potted in store-pots, so that all the Scarlets are well rooted before they ever go into pots. *Flower of the Day* was rooted and potted off into single 60-pots before that day; and in February and March they will get into 48-pots, from which they are planted out.

It will cause some surprise to learn that *Tom Thumb* is entirely and altogether discarded from these gardens; but the wonder to me was, that they fought with it so long. One of my own seedlings, No. 50, alias *Shrubland Dwarf*, was just beginning to get known about, when *Tom* was announced, and at that period nothing would go down but *Tom* and *Barnum*; but now they have had their day, and my *Shrubland Dwarf* is in the place of *Tom* all over the Crystal Palace grounds, but under another name. *Trentham Scarlet*, some one having got it from *Trentham*, where I first sent it to, along with *Punch*, *Judy*, and *Lady Middleton*. There is a bed in the Experimental Garden of the true *Trentham Scarlet*, the only one that is kept out of nearly sixty kinds which were sent there. It is far better than my *Shrubland Dwarf* for a private garden, but not so free or so flowery as my seedling. Visitors to Shrubland Park in those days often remarked on the superiority of the *Tom Thumb* in the vases, when, in reality, they were of the *Shrubland Dwarf*. *Tom* had only one season in the vases with me, it was "too long in the arms" for the highest style of classic vases—that is, the flower-stalks were too long and too spreading for symmetry, and I never had more than two narrow beds of it there in the "Fountain Garden;" but there is not a vestige of it now at the Crystal Palace.

The next best Scarlet there is a *Horseshoe* variety, called *Cottage Maid*, a good improvement on *Shrubland*

Queen, which I once thought it was; the third best is my *Punch*; the fourth best, *Cerise unique*; and the fifth best, *Compactum*; but the one which made the greatest noise this season is the original Nosegay, *Pelargonium Fothergilli*, of Sweet's "Geraniaceae," published somewhere between 1825 and 1830. I refer to it thus particularly, as I understand some visitor has claimed it as the seedling which his good lady rose two or three years since! Still I am persuaded both of them are right as far as the "raising" goes. For in my own practice there is hardly a kind in cultivation which I have not got from seeds ten times over. We have, all of us gardeners, done to the Crystal Palace people that which we would not be done unto in the matter of Geraniums. "Nothing goes down there but those everlasting *Tom Thumbs*," has been our usual cry, because we knew no better. The struggle for a first start was enormous to begin with; out of sixty kinds I only approved of the true *Trentham Scarlet*, *Baron Hugel*, *Harkaway*, and *Masterpiece*,—after my own seedlings at the Experimental. It is not safe, however, to try experiments before the public, and they kept to those kinds which they knew to be first-rate, and discarded more kinds, probably, than I did, after trying them in the private framing-ground; and there are more kinds out now on the terraces than most gardeners are aware of, as I shall show when we come to read off the beds.

Meantime, I shall tell of those which they have in preparation for next year, and how they prove them. One of those long plank-pits is devoted to the proving of kinds every summer, or at least has been so this season. The soil is much the same as the soil in the beds on the terraces; but when a kind is proved and put out in the pit to get a stock of cuttings from, the soil is something to speak about for depth and richness. *Richmond Gem*, the best of Mr. Kinghorn's Scarlets, is there on trial and most promising. His *Christina*, and his *Rose Queen* the same; *Mrs. Vernon* and *Miss Vernon*, two of the tallest Nosegays. The Mistress is over a dozen years old, and the Miss is in her teens, and the next shade to intervene between Mrs. and the best Scarlet. *Harkaway* they have for pincushion-beds and for edgings; *Baron Hugel*, ditto; *Grossularafolia*, *Dandy*, and *Citriodora Pieta*, as very dwarfs, to mix with deep blue Lobelias, or to edge pincushion-beds; and they have crimson, scarlet, and blush *Minimum*, three new, very dwarf Nosegays, to come in front of the *Golden Chain*, which they will also enter upon largely; and in this class they are going to multiply their Nosegays by fourteen next year—that is, they will plant fourteen times more of it than they have yet done for the sake of the tints, and on account of the calls to know what it was this season on the Rose Mount.

Their aim, as far as I can judge, is to procure three sizes, if possible, of all the shades and tints, so as to be able to use any one tint in the centre, or in the body, or at the outside of a bed. Not that the three are to be so planted, but that such a tint can be put in any part of a bed if it is required there. At present one is forced to use the strongest of the old plants for the centre of a bed, the strongest of the cuttings next, and the very smallest and weakest of them for the outside, supposing the bed to be of one colour, and is not to be as flat on the surface as Dutch water. But after the middle of the flowering season such beds generally have tall and dwarf plants in all parts of the bed; whereas, if each part were of one kind, and differing in natural size from the other two, each part or kind would last out the season in the same proportion to the others as at first. D. BEATON.

THE USE AND ABUSE OF MANURES

IN CULTIVATING FRUIT TREES AND VEGETABLES.

MANURES are frequently misapplied in farming as in gardening, and such things occurring through a whole kingdom may be regarded as a national loss.

And it is not only a loss as to the manure itself, but a loss in the produce; instance such things as an over-manured plot of Potatoes smothering each other, and, in the end, producing a very inferior article to those on moderate soils; or Pear trees highly manured and producing little but spray. There are three distinct classes in vegetables as to their demands in regard to manures:—First, what may be termed gluttonous habits: secondly those which on fair soil are better without manure; and thirdly, things of a medium habit in this respect.

In the first class we may place our Cauliflowers, Celery, Asparagus, Lettuces, Spinach, Endive, Cabbages, and the Broccoli family generally. As those which are better without manure, I may name Radishes, Beets, and even Carrots, if the soil is in good heart, and Parsnips. Most of the other kitchen-garden things may be called of the medium class.

As for Asparagus, abundance of manure is indispensable, both under the plants, above them, and also at the sides of the beds. Celery is next to Asparagus in this respect; but it is my firm opinion, that such as are intended for late or spring use are far better with a moderate quantity. I feel assured that heavy manurings force such a powerful root-action, even as early as February, that plants of any strength make an effort to grow; and, as we all know, the first effort this way in spring is to run to blossom. The Broccoli family are known to require liberal manurings; but in consequence of the "club," the best of manurings may be defeated. Still I believe that spring Broccoli may be over-manured, extreme grossness but makes them more susceptible of a severe winter. Cabbages revel in manure. Lettuces may be grown tolerably fine on sound soil without manure; but to have a Lettuce crisp, succulent, and of noble bulk, give it plenty of manure. The same may be said of Endive.

Amongst the moderate class let us examine Potatoes. I have a few lines in the kitchen garden here (Oulton), of what is called the *French Kidney*—a singular tuber as compared with ordinary Potatoes, being like a Fir cone: surely it must be a species. These I grew nearly thirty years since, and proved that they were totally unfit for our kitchen gardens; and why? Simply because there is so much humus in the ground, without any manure, that the plants run wild: and as for produce, never was such a host of rubbish seen, and the plants extended five feet on either side. Now, these Potatoes, which I have known excellent on ordinary unmanured soils, are splendid roasters, and, indeed, are, if boiled, a mass of flour. But we may meet with cases of the same kind in our fields.

Observe Wheat on highly manured soils, or even as following root-crops on soils highly enriched. How frequently do we see it prostrate and seriously injured. But let us turn to fruits. There are some kinds which are rendered unproductive in the extreme by manures in the soil; such is the Pear, for instance. Then others will do with a medium quantity; this includes the majority. Some few will bear heavy manurings; of such are the Gooseberry, Raspberry, White Currant, and a few kinds of Apples. As for the Pear, in general, manure in the soil is out of all question. There are, perhaps, a few kinds, if on the quince-stock, which would enjoy a little manure, such as *Louise Bonne of Jersey* and *Winter Nells*, Pears either naturally great bearers, or of delicate habit. But with several kinds a generous loam is even too good, especially if too deep. Apples are so various in habit that it is difficult to class them as to rich soils. There are some kinds which bear on the young wood, such as the *Manks Codlin*, the *Ribston Pippin*, &c., and I have always found that such will bear a liberal amount of manure. But the chief of them, on espaliers, or, indeed, in any dwarf form, are quite content with a sound loamy soil. Trees in a trained state, and while young, will be completely spoiled with manure in the soil, unless it is some barren material. Here, again, a plain loamy soil is amply sufficient. Of course, in all these fruits there are

exceptions. Cherries are partial to light and free soils, and, therefore, enjoy a moderate amount of manure, especially such as the *May Duke* class, and the *Morello*. Apricots enjoy a moderate amount of manure in addition to a generous soil.

But, after all, how much better a command have we over fruit trees by surface dressing. Here we can do as we like; but put plenty of manure in the soil that fruit trees are planted in, and they will do as they like. This latter position is not always consistent with profit. Besides, young trees in general do not need much manure, they have little work to do: give them, in general, a free loamy soil, and they will manage the rest themselves. It is rather the older and hard-cropped trees that need extra assistance, and here it can scarcely be misplaced. It is not only a question of manuring, but, in addition, a medium for the encouraging of surface fibres. It needs little argument at this period to prove the immense advantage of this as a regular system.

These are times in which the manure question has become one of the most important in the kingdom. What between the guano importation, which concerns thousands, and the great sewage affair, we may plainly see the importance of using manures with discretion.

In these parts, the centre of Cheshire cheese making, scarcely a farmer of any importance but buys guano or some newfangled artificial manure; and this, on farms where from twenty to eighty milking cows are constantly kept, besides young stock, horses, &c. They, moreover, buy immense quantities of bone-manure, it being found the best renovator of dairy pasture. So that we may see that this manure question is a serious affair.

The management of manures in the dung-yard is a question still deserving serious attention, for it is still capable of much improvement. I much fear that we may fairly say that, what between evaporation and water-waste, the country loses on the average nearly twenty per cent.

R. ERRINGTON.

CULTIVATION OF THE STRAWBERRY.

THERE are few fruits which repay the cultivator more largely than this for any amount of pains bestowed upon it. In olden times the cultivation it received was poor and scanty; but we horticulturalists seem to have awakened from our lethargy in this matter, and our fruit shows are crowded with mammoth-like specimens of most exquisite flavour and colour.

The soil is of much importance in this branch of culture. It should be a good sound loam, and if rather unctuous so much the better.

My soil is a light gravelly loam; and, being very dry, we trench a yard deep, and give it three layers of muck in each trench, picking up the bottom, which is brought to the surface at the next operation. In planting we draw drills two feet six inches apart, and put the plants the same distance plant from plant in the row.

The selection of the runners has always appeared to me to be an important process. In the *Hautbois* the males overgrow the females, and a fertile bed soon becomes an unfertile one. By rejecting the runners of such plants, and tracing each runner to a good fruiting plant, you may continue to get good crops for many years. I have long practised this with this Strawberry, and would apply the principle generally to all the family rather than take plants at random.

I find it advantageous to lay every runner into a small pot before planting out, performing always this operation before the pot becomes matted with roots. Such plants in dry weather succeed much better than bits of runners without roots; commencing to grow at once instead of drying up.

The distance at which I place my plants may, perhaps, be thought great; but it is a first principle of mine to give my crops ample space for their development, and I seldom find any plant ungrateful for such liberality. When we plant Strawberries we place a row of Coleworts between each two rows of fruiting plants, and pull them up by the roots in early spring, leaving the whole space then to the Strawberries.

I never allow Strawberries to stand more than two years upon

a piece of ground; and the second year after bearing their full and principal crop they are knocked up and burnt, carefully spreading the ashes over the land, and thus restoring much of the mineral matters absorbed by the plants to the soil.

The *Alpine* I plant and destroy annually every spring, and we get a fine handsome crop of them when other Strawberries cease.

Keens' Seedling all the world knows is excellent—in fact, it is unsurpassed. We generally turn out a lot of forced plants on a south border, which bring fine fruit.

Eliza is very delicious and a good bearer; but between it and *Omar Pacha* I could never detect any difference.

British Queen, like that sovereign lady, is the very best of its class, but it is delicate in constitution. The past summer has ripened it beautifully. It is subject to a disease in which the whole plant dies suddenly off, as from *coup de soleil*.

Nimrod, a large and late Strawberry, identical, certainly, with *Eleanor*.

Large Flat Hautbois, *Prolific*, both excellent kinds. It is not, perhaps, generally known that they force well.

Grove End Scarlet, a most early and prolific scarlet, beautiful colour, far superior for use to *Cuthill's Black Prince*.

Filbert Pine. This is, perhaps, the most prolific and the best flavoured Strawberry ever raised. It is said to be rather tender in the north of England by Mr. Nicholson, but does extremely well in the southern and midland counties.

Mammoth is the worst of all Strawberries, but its fruit is splendid in appearance. We grow a few of them to put in mixed dishes, where they are very telling.

Sir David Dundas is a fine large Strawberry of tolerable flavour: it is magnificent in size.

Surprise is a large, coarse, and almost worthless kind.

Cinquefolia (Myatt's), is a large and fine Strawberry; but it is difficult to get it well ripened up to the point.

Globe is a Strawberry of the *British Queen* class; but there are few preferable to it for piquant flavour. It ought to be grown in every collection.

Sir Charles Napier, a beautiful Strawberry of fine size and colour, and a very good forcer.

Trollope's Victoria, a large and prolific fruit, very good for forcing, rather acid.

Prince of Wales (Ingram's), a useful Strawberry. I have seen it forced in great perfection at Windsor.

The above kinds, with the *Elton Pine* and about twelve of Mr. Nicholson's new kinds, are what we shall grow this year; and from them I anticipate a fine succession of fruit.

For the purpose of keeping the fruit clean we use fresh straw under the leaves, which, if it does not meet the economical views of market-gardeners, preserves the fruit in a clean and wholesome state for a gentleman's table.

On all dry soils little good can be done with Strawberries in a hot season without plenty of water. This is the life and soul of them. With plenty of hot sun and abundance of this fluid the fruit attains to great perfection; without them it languishes. Therefore a good Strawberry garden should be close to a good supply of water: and it should be applied with an unsparing hand as soon as the fruit is set, giving two or three good waterings; the evaporation from which is prevented by the covering of straw, and further attention in this way is not necessary.

It used to be fashionable with old gardeners to allot a particular piece of ground for the growth of certain crops; and I would here particularly advise the abandonment of any such practice. We had in those days no Sollys to point out the errors of such practices, or to explain the principles upon which the laws of fertilisation are founded; but now that we have these advantages let us make use of them, by introducing for successional crops those vegetables which differ from their predecessors as much as possible.

The Strawberry is one of our most valuable fruits for forcing purposes, and deserves all attention. For this purpose the very earliest runners should be chosen and laid into small 60-sized pots. Before those pots get quite full of roots they should be shifted into six-inch pots, into which they should be potted firmly in a compost of rich, unctuous loam and rotten dung, mixed with a little mortar rubbish. They should be well drained; and if a small handful of soot is dropped into the bottom of each pot it will prevent the entry of worms. When potted, they should be set upon some impervious bottom thinly, and fully exposed to the sun and air, and kept well supplied with water till the autumn—say the end of October, when they may go pretty dry, and be housed in any temporary glass-case, keeping them there

also rather dry than otherwise. Thus circumstanced, they will well mature their buds; and the cultivator will be rewarded by seeing them fresh strong buds when excited, and also showing an abundant crop of fruit.

I have at present in stock 1400 of these plants in pots as fine as could be desired.

HENRY BAILEY, Nuneham.

HARDY FLOWERING HERBACEOUS PLANTS.

(Continued from page 368.)

ASCLEPIAS—SWALLOW-WORT.

Nat. ord., Asclepidaceæ. Linn. Pentandria Monogynia.

GENERIC CHARACTER.—*Corolla* five-parted, revolute. *Corona* on the upper part of the tube of the filaments, formed of five horned hoods. *Follicles* smooth.

ASCLEPIAS ACUMINATA (long-pointed). *Stems* erect, simple, glabrous; *leaves* ovate, sub-cordate, acuminate, lower leaves on short petioles, upper ones sessile; *umbels* lateral, solitary, erect. 2 ft. Red. July. N. America.

A. AMENA (pleasing). *Stems* simple, with two rows of down; *leaves* nearly sessile, oblong-oval, downy beneath; *umbels* terminal, erect; *corona* erect, its appendages exserted, red. 3 ft. Purple. August. N. America.

A. AMPLEXICAULIS (stem-clasping). 2 ft. Red. July. North America.

A. DOUGLASSII (Douglas's). *Stems* simple; *leaves* oblong, downy beneath; *peduncles* short, downy; *umbels* many-flowered; *flowers* downy; *corona* leaflet ovate, pointed. 1½ ft. Red. West America.

A. NIVEA (snowy). *Stems* simple; *leaves* ovate-lanceolate, smoothish; *umbels* erect, terminal, solitary. 3 ft. White. August. N. America.

A. OBTUSIFOLIA (blunt-leaved). *Leaves* stem-clasping, oblong-roundish, obtuse, waved; *umbels* terminal, solitary, on long peduncles, many-flowered, glabrous; *corona* horns exserted. 2 ft. Purple. July. N. America.

A. PULCHRA (fair). *Stem* divided at top; *leaves* lanceolate; *umbels* erect, in pairs; *corona* horns exserted. 2 ft. Purple. July. N. America.

A. QUADRIFOLIA (four-leaved). *Stems* erect, simple, glabrous; *leaves* ovate-acuminate, petiolate, those in the middle of the stem larger, and four in a whorl, the rest opposite; *umbels* in pairs, terminal, loose-flowered, pedicels filiform. 1 ft. White and red. July. N. America.

A. RUERA (red). *Stem* erect, simple; *leaves* alternate, ovate-acuminate; *umbels* compound. 1 ft. July. Virginia.

A. SYRIACA (Syrian). *Stems* simple; *leaves* lanceolate-oblong or oval, gradually acute, downy beneath; *umbels* drooping. 4 ft. Purple. July. Syria.

A. TUBEROSA (tuberous-rooted). *Stems* nearly erect, divaricately branched at the top, very hairy; *leaves* scattered, oblong-lanceolate, hairy; *umbels* disposed in a terminal sub-corymb. Orange. August. N. America.

The Swallow-worts are hardy, handsome plants, requiring a deep soil of one-fourth peat, and three-fourths sandy loam, on a rather moist bottom.

Propagated by taking up the large clumps of roots and dividing them into sections, with two or three buds to each. The best time for this operation is in autumn, as soon as the stems decay. Plant the divisions immediately in fresh soil where they are to bloom. This dividing process should be done about every third year.

A. tuberosa is a truly fine species, and should be in every garden. The best-bloomed plants we ever saw were in the garden of E. Leeds, Esq., at Stretford, near Manchester. He is a most zealous cultivator of rare herbaceous plants, of which he has a very large collection.

ASPERULA—WOODROFF.

Nat. ord., Galieæ. Linn. Tetrandria Monogynia.

GENERIC CHARACTER.—*Calyx* five-toothed. *Corolla* one-petaled, funnel-shaped, four-lobed. *Stamens* inserted in a tube. *Style* filiform. *Stigma* bifid. *Seeds* two, globose, not crowned by the calyx.

ASPERULA ALPINA (alpine). *Plant* entirely downy; *stems* procumbent, much branched, four-sided; *leaves* four in a whorl, linear, acute, upper ones nearly equal, spreading; *cymes* ter-

minal, crowded; lobes of *corolla* four. 6 in. White. July. Caucasus.

A. ARADIENSIS (Arcadian). *Plant* hoary; *stems* decumbent; *leaves* six in a whorl, oblong-ovate, acute, edges revolute; *flowers* terminal and axillary, aggregate, sessile. 3 in. Red. April. Arcadia.

A. ARISTATA (awned). *Plant* erect, glabrous; *leaves* four in a whorl, linear, acute; upper ones opposite; *bracts* like leaves, but smaller; *flowers* fasciated, terminal; *corolla* lobes bluntly awned. 1 ft. Yellow. July. S. of Europe.

A. CRASSIFOLIA (thick-leaved). *Leaves* four together, oblong; lateral leaves revolute, rather obtuse, pubescent. 1 ft. White. June. Levant.

A. GALIODES (Galium-like). *Plant* glabrous; *stems* terete, ascending; *leaves* six to eight in a whorl, linear, glaucous; *peduncles* dichotomous, terminal, corymbose; *corollas* campanulate; *fruit* glabrous. 1 ft. White. July. S. of Europe.

A. HIRSUTA (soft-haired). *Plant* erect, or ascending; *leaves* six in a whorl, linear, acute, margins revolute, lower ones and tops of stems glabrous; *flowers* in fasciated umbels; *bracts* hardly exceeding the ovaries; *fruit* glabrous. 1 ft. White. June. Portugal.

A. HIRTA (bristly). *Plant* tufted, erectish; *leaves* six in a whorl, linear, acute, hairy, longer than internodes; *flowers* aggregately umbellated, terminal, sessile, exceeding the bracts; *fruit* glabrous. 1 ft. Purple. July. Pyrenees.

A. INCANA (hoary). *Stems* villous at base, smoothish at top; *leaves* six in a whorl, linear, hoary; *flowers* downy, in terminal fascicles. 1 ft. Purple. June. Crete.

A. LONGIFLORA (long-flowered). *Stems* numerous from same neek, erectish, glabrous; *leaves* four in a whorl, linear, lower ones small, obovate, upper ones opposite; *flowers* with elongated tubes, fasciated, terminal, pedunculate; *bracts* small, subulate; *fruit* glabrous. 1 ft. Yellow-purple. July. Hungary.

A. LONGIFOLIA (long-leaved). *Stems* smooth; *leaves* eight in a whorl, linear-lanceolate, deflexed, edges rather scabrous; *panicles* capillary, many-flowered; *fruit* smooth. 1 ft. Red. July. S. of Europe.

A. MONTANA (mountain). *Plant* glabrous; *stem* fæcid; *leaves* linear, lower ones six in a whorl, middle ones four, upper ones opposite; *bracts* linear; *flowers* in fascicles; *corollas* four-cleft, scabrous externally. 1 ft. Pink. July. Hungary.

A. NITIDA (glossy). *Plant* glabrous; *stems* diffuse, densely tufted, as well as the leaves; *leaves* four in a whorl, shining, glaucous, lower ones oval, others linear, acute, awned, revolute; *fascicles* terminal, three to four-flowered, long as leaves; *corolla* lobes awned, tube terete, wide; *fruit* glabrous, rather rugged. 1 ft. Pink. August. Greece.

A. ODORATA (sweet-scented). *Plant* glabrous, erect, or ascending; *stems* simple; *leaves* eight in a whorl, lanceolate, smooth, edges serrulately scabrous; *corymbs* terminal, pedunculate; *fruit* hispid. 1 ft. White. June. Britain.

A. PYRENAICA (Pyrenean). *Stem* erect; *leaves* four in a whorl, lanceolate-linear; *flowers* often trifid. 1 ft. Flesh. July. Spain.

A. RIGIDA (rigid). *Stems* diffuse, downy; *leaves* linear, four in a whorl, upper ones opposite; *flowers* scattered; *fruit* glabrous. 1 ft. Red. July. Greece.

A. SCABRA (rough). *Stem* scabrous, diffuse, kned; *leaves* four in a whorl, lower ones oblong, downy, upper ones glabrous, linear, unequal, opposite, small, awned; *flowers* fasciated; *corollas* scabrous, lobes mucronate; *style* bi-partite at base. 1 ft. White. July. Italy.

A. SUPINA (bowed-down). *Plant* glabrous; *stem* much branched at base, procumbent; *leaves* four in a whorl, linear, acute; lower ones imbricately crowded; *peduncles* three-flowered, axillary and terminal, rather paniced; *corolla* tube terete, lobes four, oblong; *fruit* glabrous. 1 ft. Pink. June. Caucasus.

A. TAURINA (bull). *Plant* erect, smoothish; *leaves* four in a whorl, ovate-lanceolate, three-nerved, margins finely ciliated; *corymbs* pedunculate, axillary, fasciculately umbellate, involucreted; *bracts* ciliated; *fruit* glabrous. 1 ft. White. June. Italy.

A. TOMENTOSA (downy). *Plant* ascending, or diffuse, clothed with velvet down; *leaves* four in a whorl, linear, margins revolute, lower ones obovate; *flowers* terminal or axillary, eight to ten in a fascicle; *bracts* shorter than flowers. 1 ft. Red. July. S. of Europe.

A genus of low-growing hardy plants, of neat habit, with pretty, though small flowers. Any garden soil, not heavy or

wet, will grow them. Many of the species thrive well under trees, or open-growing shrubs; whilst others are suitable for rockeries, especially on the shady side.

Propagated by taking up the plants in early spring, and cutting them into moderately-sized divisions, replanting them immediately in fresh soil.

The *Woodroffs* are very little known, or they would be more cultivated, the foliage being so beautiful and refreshing to the eye. The flowers also being simple, neat, and well adapted for bouquets.

ASPHODELUS—ASPHODEL, OR KING'S SPEAR.

Nat. ord., Liliaceæ. Linn. Hexandria Monogynia.

GENERIC CHARACTER.—Corolla six-parted, spreading. Neetary six valves covering the germen.

ASPHODELUS ÆSTIVUS (summer). Probably a variety of *A. albus*. 2 ft. White. July. Spain.

A. ALBUS (white). Stem naked, simple; peduncles in a cluster, long as the bracts; leaves linear, keeled, smooth. 2 ft. White. April. S. of Europe.

A. CAPILLARIS (hair-leaved). 4 ft. Pale yellow. June. S. of Europe.

A. CRETICUS (Cretan). Stem leafy, branched, naked above; leaves filiform, striated, toothed, rather ciliated. 2 ft. Yellow. June. Candia.

A. INTERMEDIUS (intermediate). Stem nearly naked; leaves upright, cylindrical, fistular. 2 ft. White. July. Canaries.

A. LUTEUS (yellow). Stem leafy; leaves three-sided, striated; stipules very large. 3 ft. June. Sicily.

A. RAMOSUS (branchy). Stem naked, branched; peduncles alternate, longer than bract; leaves ensiform, keeled, smooth. 2 ft. White. April. S. of Europe.

A. SIBIRICUS (Siberian). This is only a variety of *A. luteus*, from which it differs in having smaller and shorter bracts, a lower stem, with earlier and paler flowers, and more glaucous leaves. 2 ft. Pale yellow. May. Siberia.

A. TAURICUS (Taurian). Stem leafy; leaves subulate, three-sided, striated; bracts membranous, lanceolate, the upper longer than the flowers. 3 ft. White. June. Tauria.

A. TENUIOR (slenderer). This is probably a variety of *A. luteus*, from which it differs chiefly in being smaller, having finer leaves, with smaller, fewer, and paler flowers. Its great difference is having the upper part of the stem naked, with bracts as short or shorter than the peduncles. 2 ft. Yellow. July. Siberia.

The species of this genus are all free to bloom, producing their handsome Lily-shaped flowers on stately spikes rising high above the foliage. The best soil for them is an open sandy loam, well drained.

Propagated by taking off in autumn side-offsets, which are produced freely; each offset should have roots to it. They should be planted immediately in a reserve-bed till they acquire strength to bloom, and may then be finally planted where they are to bloom.

A. intermedius is rather tender, requiring to be taken up, potted, and placed for shelter from frost in a cold pit.

ASPIDISTRA LURIDA VARIEGATA.

THIS is commonly an inhabitant of our stoves, yet accommodating itself in summer to our climate in the open air without losing its characteristic variegation. It has yet to be proved whether it will endure our climate at all seasons. T. APPLEBY.

(To be continued.)

THE SCIENCE OF GARDENING.

(Continued from page 370.)

THE LEAVES.

THE leaves are highly vascular organs, in which are performed some of the most important functions of a plant. They are very general, but not absolutely necessary organs, since the branches sometimes perform their offices; such plants, however, as naturally possess them are destroyed, or greatly injured by being deprived of them. The duration of a leaf is, in general, but for a year, though in some plants, they survive for twice or thrice that period. These organs are generally of a green colour. Light seems to have a powerful influence in causing this; since, if kept in the dark, they become of a pale yellow, or even white hue, unless uncombined hydrogen is present, in which case they

retain their verdure though light be absent. Hence their blanching would seem to arise from their being unable to obtain this gas, under ordinary circumstances, except when light is present. Now, the only source from which they can obtain hydrogen is by decomposing water; and how light assists in the decomposition may perhaps be explained by the disoxygenizing power with which it is gifted. The violet rays of the spectrum have this power in the greatest degree; and Saenbeier has ascertained by experiment that those rays have the greatest influence in producing the green colour of plants.

Seunbeier has observed that, when plants are made to vegetate in the dark, their blanching is much diminished by mixing a little hydrogen gas with the air that surrounds them. Ingenhousz had already remarked that when a little hydrogen gas is added to the air in which plants vegetate, even in the light, it renders their verdure deeper; and he seems to think, also, that he has proved by experiments that plants absorb hydrogen gas when so circumstanced. M. Humboldt has observed that the *Poa annua* and *compressa*, *Plantago lanceolata*, *Trifolium arvense*, *Cheiranthus cheiri*, *Lichen verticillatus*, and several other plants which grow in the galleries of mines, retain their green colour even in the dark, and that in these cases the air around them contains a quantity of hydrogen gas. This philosopher concludes, from his observations, that the white colour of blanched plants is occasioned by their retaining an unusual proportion of oxygen, and that this is prevented by surrounding them with hydrogen gas. This may, perhaps, be true in certain cases; but the experiments of Mr. Gough are sufficient to prove that the retention of oxygen is not the only difference between green and blanched plants.

The green colouring matter of plants has been shown by Rouelle to be of a resinous nature. From this, and from the circumstance of its being formed only in the light, Berthollet has inferred that the leaves of plants have the property of decomposing water as well as carbonic acid when exposed to the light of the sun. The oxygen emitted, according to him, is derived partly from the decomposed carbonic acid, and partly from the water, while the carbon and hydrogen enter into the composition of the inflammable parts of the plant. This ingenious theory, though sufficiently probable, is not susceptible of direct proof. From the experiments of Saussure we learn that when plants are made to vegetate in pure water, in atmospheres destitute of carbonic acid gas, the quantity of their fixed matter does not increase; but when their atmospheres contain this acid gas the increase of weight which they receive is considerably greater than can be accounted for by the carbon and oxygen derived from the carbonic acid absorbed. Hence it is clear that a portion of the water must enter into their composition. It is more likely that the elements of this portion arrange themselves in a different way than that they still continue in a state of water. These facts certainly strengthen the hypothesis of Berthollet. Indeed, if we consider the great quantity of hydrogen contained in plants, it is difficult to conceive how they should obtain it, provided the water which they absorb does not contribute to furnish it.—(Thomson's Vegetable Chemistry.)

When the leaves are of any other hue than green they are said to be coloured. This variegation is often considered to be a symptom either of tenderness or debility; and it is certain, when the leaves of a plant become generally white, that that individual is seldom long-lived. Mr. Knight, however, has demonstrated that variegation is not a certain indication of a deficiency of hardihood.

All organs exhibiting or assuming a green colour are found to be capable of decomposing the carbonic acid of the sap or of the air when exposed to the action of solar light. In this operation the oxygen of the acid is exhaled into the atmosphere, and its carbon fixed in the vegetable tissue. Whence it seems to follow that the green colour of the leaves is owing to the fixation of carbon; for where the decomposition of carbonic acid is not going on the organ remains colourless. The brightness of the green seems to depend upon the degree of light to which the organ is exposed; and yet solar light is not indispensable. De Candolle gave the green colour to some plants of *Lepidium sativum* merely by the light of a few Argand lamps; but they did not give out oxygen when placed in water.

Still the deposition of carbon caused by the action of solar light does not affect the membranous tissue. Still this tissue retains its original colour and transparency, so that it is only the chromule which assumes the green colour. But how does carbon, which is black, yield a colour which is green? Senne-

bier solved the problem as follows:—Carbon is, in strict propriety of speech, not a black, but a very deep blue; and vegetable tissue is not absolutely a pure white, but rather a pale yellow. Hence, the green is formed by the mixture of a yellow and blue. This explication, *quoique un peu mécanique*, De Candolle regards as likely to be the true one. Yet we cannot help entertaining some doubts with regard to its validity. Surely the membranous tissue of many plants assuming a green colour has nothing in it of a yellow. But wherever we turn to look for an explication there is doubt; and the solution of the problem may be said to be a chemical puzzle. One attributes it to the presence of an oxide of iron; another to the predominance of an alkali; and neither solution is satisfactory. Yet plants placed in the dark do not lose their green colour if the atmosphere in which they grow contains a certain quantity of hydrogen or of azote. Humboldt found the leaves of *Poa annua* and *Plantago lanceolata* still green though growing in the galleries of the mines of Freyberg. It should be recollected, however, that they must have been occasionally exposed to the light of the miners' lamps. Leaves, bracts, calices, ovaries, are the organs that are most generally green: though you may find exceptions to the rule, both in organs which it includes and in organs which it excludes. The bracts of *Bartsia coccinea* are scarlet, and the embryo of the Mistletoe is green.—(*Keith's Lexicon*.)

The functions of the leaves appear to be a combination of those of the lungs and stomach of animals; they not only modify the food brought to them from the roots, so as to fit it for increasing the size of the parent plant, but they also absorb nourishment from the atmosphere. The sap, after elaboration in these organs, differs in every plant, though, as far as experiments have been tried, it appears to be nearly the same in all vegetables when it first arrives to them. The power of a leaf to generate sap is in proportion to its area of surface, exposure to the light, and congenial situation.

Leaves throw off a very considerable quantity of water. Dr. Hales found that a Cabbage emitted daily nearly half its weight of moisture, a Sunflower, three feet high, perspired 1 lb. 14 ozs., and Spearmint exhales $1\frac{1}{4}$ times its weight in the same period. But of all the plants the diurnal perspiration of which has been ascertained, the Cornelian Cherry (*Cornus mascula*) transpires the most; the exhalation amounting to nearly twice the weight of the plant in twenty-four hours. This aqueous expiration takes place chiefly during the day, is much promoted by heat, and checked by rain, or a reduction of temperature.

On the free performance of this function of plants their health is dependent in a very high degree; and we believe that half the epidemics to which they are subject arise from its derangement. That consequence of the clubbing of the roots of the Brassica tribe called *fingers and toes* arises, we consider, entirely from it. In the drought of summer, when the moisture supplied to a club-rooted Cabbage by its root does not nearly equal the exhalation of its foliage, to supply this deficiency the plant endeavours, by forming a kind of spurious bulbous root, to adapt itself to the contingency; in the same manner that in dry situations, the fibrous roots of *Phleum pratense*, *Alopecurus geniculatus*, &c., acquire a tuberous form, because bulbous or tuberous-rooted plants, it is well known, will exist in a soil so deficient in moisture as to destroy all fibrous-rooted vegetables.

Evergreens transpire less moisture than deciduous plants; which would lead to the expectation that they are more capable of living in dry situations, which, in general, is really the case.

The matter transpired by a healthy plant is nearly pure water, 5,000 grains of it never containing more than one grain of solid matter, and this is constituted of resinous and gummy matter, with carbonate and sulphate of lime. It appears to be nearly the same in all plants. The quantity, however, varies in every species, probably in every individual—and is greatly influenced by the quantity of water applied to the roots. Under precisely similar circumstances Sennebie obtained the following results:—

	Grains.	Grains.
A. Peach branch, imbibing	100 exhaled	35
"	210 "	90
"	220 "	120
"	710 "	295

We have found the branch of a Pelargonium, that, whilst growing on the parent stem, exhaled only twenty grains in twenty-four hours, more than trebled that quantity, in the same time when cut from the stem, and placed with the divided end in water. This increased transpiration is attended by a propor-

tionate reduction of temperature; for a collection of Pelargoniums, in the midst of which Fahrenheit's thermometer stood at 55°, fell to 48° within two hours after a plentiful watering to their roots only, though the water was of the same temperature as the greenhouse.

For the purpose of ascertaining the composition of the liquid transpired by plants, M. Sennebie collected 13,030 grains of it from a Vine during the months of May and June. When evaporated 2 grains of residuum were left, composed of nearly $\frac{1}{2}$ grain of carbonate of lime (chalk), $\frac{1}{12}$ th grain of sulphate of lime (gypsum), $\frac{1}{2}$ grain of matter apparently gum, and $\frac{1}{2}$ grain apparently resinous. He analysed 60,768 grains of a similar liquid collected from the Vine during July and August. The residuum after evaporation weighed $2\frac{1}{2}$ grains, composed of $\frac{3}{4}$ grain of carbonate of lime, $\frac{1}{4}$ grain of sulphate of lime, $\frac{1}{2}$ grain of gum, and $\frac{1}{2}$ grain of resin. The liquid transpired by *Aster Nova-Angliæ* afforded precisely the same ingredients.—(*Encyc. Meth. Phys. Veget.*, 287.)

As the season of growth advances the transpiring power of leaves decreases. Under similar circumstances Sennebie found the transpiration much greater in May than in September.

The transpiration of plants decreases with that of the temperature to which they are exposed, as well as with the period of their growth. This explains why the gardener finds that his plants do not require so much water in cold weather, nor during the time that elapses between the fall of their blossom and the ripening of their seed. During this period they do not transpire more than one-half so much as during the period preceding and attending upon their blooming.

The transpiration takes place from the upper surfaces of the leaves; and, if these surfaces are coated with varnish, the leaves gradually decay and fall, and the growth of the plant ceases until fresh leaves are produced. Hence arises the benefit which plants derive in rooms, greenhouses, and other confined enclosures, from keeping those surfaces cleansed with the sponge and syringe. Some plants are particularly sensitive to injury from any check to their transpiration, among which are the Tea-scented Roses; and it thence arises that they cannot now be cultivated in nursery gardens near London, where they once flourished when that metropolis was less extensive. The advantage derived by plants from having their leaves cleansed was exemplified by the following experiment:—

Two Orange trees, weighing respectively 18 ozs. and 20 ozs., were allowed to vegetate without their leaves being cleansed for a whole twelvemonth; and two others, weighing 19 ozs. and 20½ ozs. each, had their leaves sponged with tepid water once a week; the two first increased in weight less than half an ounce each; whilst of the two latter, one had increased two, and the other nearly three ounces. In all other respects they had been treated similarly.

It must be remembered, however, in using the sponge and the syringe, that the under side of the leaves is an absorbing surface, benefited by being kept clean, and by the application of moisture. The Kidney Bean, Sunflower, Cabbage, and Spinach, absorb moisture equally by their under and upper surfaces; the Cockscomb, purple-leaved Amaranth, Heliotrope, Lilac, and Balm, absorb most freely by their upper surfaces; and the Vine, Pear, Cherry, Apricot, Walnut, Mulberry, and Rose, absorb most by their under surfaces.—J.

(To be continued.)

DEATH OF PROFESSOR HENFREY.—Professor Henfrey, a Fellow of the Royal and Linnean Societies, a Member of the Council of the Horticultural Society, Professor of Botany in King's College, London, and Examiner in Natural Science to the Royal Military Academy and the Society of Arts, died at his house at Turnham Green on the morning of the 7th inst. Professor Henfrey has long been known as an excellent histologist and sound vegetable physiologist. Especially conversant with the botanical literature of the Germans, we owe to his pen many valuable dissertations upon subjects little attended to in England. The papers in the "Micographic Dictionary," written by him in conjunction with Dr. Griffith, are celebrated for their accuracy as well as skilful condensation. The physiological part of his "Elementary Course of Botany," and the papers on "Vegetable Structure," now in course of publication in the Journal of the Royal Agricultural Society, will always be regarded as the productions of a man not only familiar with the truths of science, but able to render them attractive to those who are little accustomed to think upon

such subjects. In private life Professor Henfrey was endeared to his friends by the gentleness of his manners and the genuine kindness of his nature.—*Athenæum*.

THE HYDE.

THIS compact, pretty residence of Lionel Ames, Esq., is situated on an elevated platform almost as high as Luton Hoo, on the opposite side of the river Lea, and about three miles from the town of Luton. In the vale of the Lea the Welwyn branch is now being formed of the Dnnstable, Luton, and Welwyn Railway, which, as a loop line, will connect all the great railways in the east, north, and west of London.

It has been objected to some of the notices of places appearing in these pages, that the gardens and *demesnes* were so extensive, that anything like imitations among the great mass of readers, was entirely out of the question, and that notices and criticisms in a kindly spirit of smaller places would be more generally useful. Convinced that there is a certain amount of truth in this representation, I have been induced to notice one of the neatest, simplest, and best-filled flower gardens I have seen this season, though not of very great extent; and also to notice some apparent errors in the arrangements, with which, however, neither the gardener nor the present much-esteemed proprietor have had anything to do. The latter inheriting the defects as well as the beauties of his garden and *demesne*.

Several instances have come within my notice, in which gentlemen of refined taste have altered altogether the entrance-doors of their houses, in order that the most striking scenery might be seen first from the principal windows. On this principle the carriage entrance to the Hyde should be at the garden front. With the exception of the flower garden and lawn, and groups in a small park beyond, the view on that side may be said to be self-contained, owing to the somewhat level platform extending a considerable distance, and, so far as I am aware, the amphitheatred woods of Luton Hoo being shut out by home plantations. On the entrance front, on the other hand, a beautiful panorama is opened up of the varied ground of the home park shelving down to the Hatfield and Luton road, and the river, and the varied and rising ground on its opposite side; the foreground being enriched with groups of Deodars, Cedars of Lebanon, and the best varieties of the Pine tribe, which the proprietor has planted in considerable quantity.

An idea of the compactness of the establishment may at once be formed, if the reader would suppose himself standing on the lawn front of the mansion, with his back to the house, for then some thirty yards or so to the left hand end of the raised terrace walk (see diagram), he would see a thick winding shrubbery, which effectually shuts out from view all traces of the well-cultivated small kitchen garden; while at something like a similar distance to the right-hand end of the terrace, a similar shrubbery and trees effectually shut out the stables and offices. This compactness, which does so much to ensure economy in labour, might, however, have been quite as effectually secured if the carriage entrance had been on the lawn front, with the arrangement of kitchen garden and offices just as they are. A more private road for manure, &c., being placed farther back out of sight. With such an arrangement, and a terrace, and either a sunk or balustraded flower garden, where the present entrance now is, the eye, when fatigued with contemplating floral beauty, would gather freshness and pleasure by reposing for a time on the beautiful diversified scenery beyond. Right or wrong, there can be no question that the fine scenery of the place is obtained from the entrance-front. If the idea were to render the lawn-front as secluded as possible, and to depend entirely for interest on its self-contained attractions, then the idea has been successfully carried out.

Besides, as in too many cases of old mansions, especially where it has been considered to be more according to rule to sink at least one story below ground, instead of rising an additional story into the pure atmosphere, not only are the cellars, &c. so sunk at the Hyde, but kitchen, pantries, and a very large, fine housekeeper's-room. The windows of the latter have plenty of light from a steep grass-slope in front, communicating, however, with the flower-garden lawn, so that if these windows are not covered with blinds, &c., it is impossible to examine the beds near the house without also noticing what is going on in these rooms. Leaving the necessary privacy which a room implies out of consideration, we are, in general, so much influenced, though

not controlled by circumstances, that in such a case we can hardly avoid allowing two very different classes of ideas to dispute for the mastery of our thoughts at one and the same time, and if the strictly beautiful triumphs over the necessary and useful, it always loses rather than gains by the skirmish.

True, a person who thought more of unity of expression and mere appearances in such circumstances than the health and comfort of his servants, could substitute a dead wall instead of the green bank some four or five feet from the windows, and then cover the space above with an elegant open grating, the front studded with vases, &c. These inconveniences, if looked upon as such, would have been easily obviated, if the entrance-approach had swept round to the lawn-front of the house at a fair distance from these windows.

Whilst making these remarks, which may be worth the attention of those intending to build a country residence, one very desirable feature under existing arrangements at the Hyde should not be forgotten.

From the entrance-front to the gate which leads to the kitchen garden on one side, and to the stables on the other, a low, stone-coped wall is built, over-topped with Lauristinus and other evergreens, so as effectually to shut out all traces of the pleasure-ground and flower garden until you enter upon them, or see them from the windows. In passing along from the kitchen-garden side of the approach, the only thing that may lead to the idea of flower-beds would be the glass of a small conservatory at that end of the mansion, and communicating with the living-rooms. Owing to a plan being only partly carried out, I daily witness a glaring defect in this respect. One of the fine features of Shrubland Park is, that the gardens are thoroughly separated from the park scenery. This is just as effectually secured at the entrance at the Hyde, and by more simple means. To prevent returning again to it, I may mention that the conservatory was well filled with flowering-plants; and in a shady recess, close to the living-room, a group of Achimenes were more at home than they would have been more fully exposed to the light.



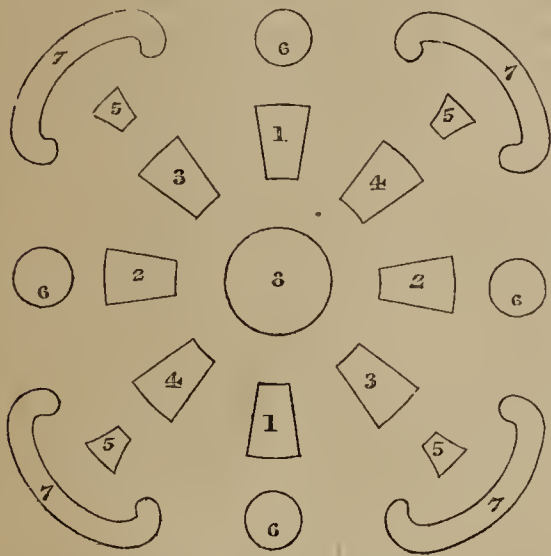
1. Platform on which the house stand.
2. Lawn on garden front, on which the two groups of flower-beds are placed.
3. Steep sloping bank of grass $3\frac{1}{2}$ feet in height, 6 feet on slope.
4. Terrace walk of gravel, six yards broad, and 96 yards long.
5. Bank not so steep.
6. Part of lawn beyond, separated from park scenery by a ha ha wall.

The most striking feature in the lawn-front of the Hyde, so far as groundwork arrangement is concerned, is the raised gravel terrace, marked 4 on the diagram, which is six yards wide at top and ninety-six yards long; is three feet and a half above the general level; is placed twenty-eight yards from the house; has a flight of stone steps at each end, and ornamented with vases there and at regular distances along its sides; these being filled with Scarlet Geraniums. From what some gardeners who have lived at the Hyde, and the way many visitors here have spoken of this raised walk, I was forced to conclude that, in their estimation, it was a regular pet gem, worthy of being praised and imitated. I can hurt no one by saying that I look upon the huge mound as a great deformity, separating into two unequal divisions, without any apparent reason, what would otherwise have been a uniform level lawn. It always struck me that the architect and landscape gardener must have laid their heads together to form this mound as a means of getting rid of the soil removed from the lower story and foundations of the building. That the walk will be dry in all weathers I readily grant; and this might be a reason where the grounds are sunk in a swamp, but scarcely applicable to a raised platform like the Hyde, with the ground falling from it in most directions. As stated in a late number, a similar terraced mound exists at Gorhambury; but, at the boundary of the pleasure-ground, no strong reason can be assigned for its being placed there, that ever I heard of, any more than for this breaking up of the lawn at the Hyde, though I believe both were done by a celebrated artist. Admitting that, in both cases, an error has been committed, I freely admit that the eyesore has been so far turned to the best possible results under the circumstances. The walk is made ornamental by the vases; and in walking along you look down and see the beauty of the groups on lawn 2 at a glance. On looking also at the same groups from the base of the house, or even from the

windows of the principal rooms, the bank 3 acts as a background to the dazzling colours, and from the windows, especially, you might imagine you were looking down on a sunk parterre. Whether I am right or wrong will depend on whether our readers will agree with me in opinion, that, to give dignity to a mansion, terrace-walks in its vicinity should always be below rather than above the ground line of the building.

The beautiful appearance presented by the simple groups on 2, between the terrace and the house, at the end of August, would prevent most people thinking about the terrace-walk. The beds were all thoroughly filled, and I did not notice a faded leaf or a decayed truss of bloom on any of them. I called on a forenoon, and a children's fête was to take place on the afternoon, and some extra care might have been exercised, though Mrs. Ames assured me that Mr. Donaldson, the excellent gardener, kept them always in equally good condition.

FIG. 1



The groups could hardly be simpler. That named Fig. 2, is immediately in front of the house. No. 1 extends more from the conservatory end of the house towards the kitchen-garden boundary, with the raised terrace on one side, the same as in the case of No. 2.

The planting in group 1st is as follows:—

- 1, 1, *Scarlet Defiance* Verbena, edged with *Mrs. Holford*.
- 2, 2, *General Simpson*, edged with ditto.
- 3, 3, *Heliotrope Miss Nightingale*, purple.
- 4, 4, Purple Petunia.
- 5, 5, 5, 5, Rosy-pink Geranium.
- 6, 6, 6, 6, Yellow Calceolarias, with splendid plants of *Humea elegans* in the centre, the lower branches of bloom sweeping close to the Calceolarias.

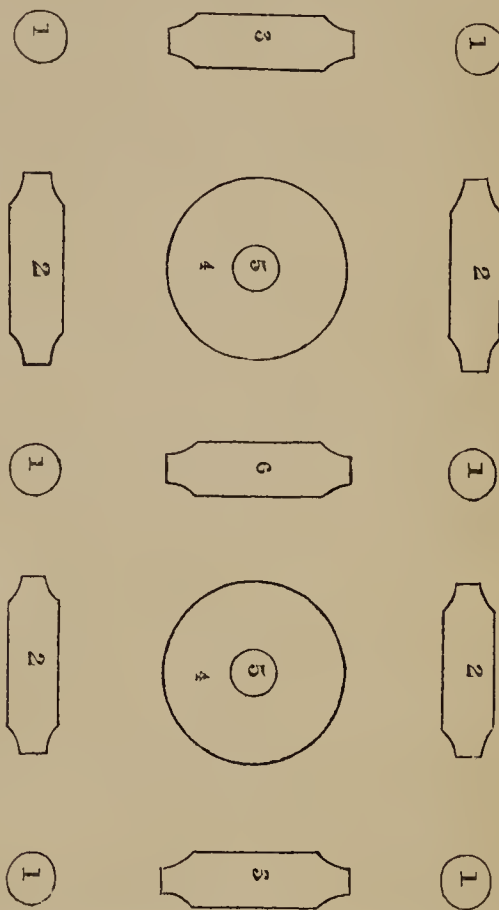
7, 7, 7, 7, *Verbena venosa* in the centre, surrounded with *Scarlet Geranium*, and then edged with variegated *Manglesii*, making thus five rows in the narrow beds.

8, a raised bed, formed, as it were, of three baskets, the lowest being on the ground level. The highest and smallest fully six feet above it, and the middle-sized one in the centre; so placed that the plants in each basket were seen distinctly, and yet no great space between them. This raised triple-bed, or basket, was beautifully filled with *Brilliant Geranium*—a dense mass of scarlet, with the foliage more white than usual. A light fringe of the variegated *Alyssum* surrounded each of the three baskets: and were I to indulge in criticism, I should say that the colour was too similar to the leaves of the Geranium; and that a purple, a blue, or even a yellow that would have hung a little from the two upper baskets would have been more telling. Perhaps, also, two of the beds of purple might have been replaced with yellow. The outside beds, 7, were, owing to their narrowness, rather crowded, though more than excusable in the present thirst for variety. Three lines would have shown the colours more distinctly than the five; and, considering the huge blaze of colour in the centre, I question—though I should not like to decide—whether one colour in these four 7-beds would not have been more telling. The mere plan will fail to convey an idea of the beauty of this group—unless the high triple basket in the centre

and the splendid plants of *Humea* in No. 6 be kept in mind, which, together, drove away everything like tameness.

Fig. 2nd in front of the windows was also very telling: and yet how simple the figures! and, as a whole, how simple and uniform the planting! Good people who imagine that the beauty of a flower garden consists in quirks, and cracks, and curves, and scrolls, might here find for themselves a note of inquiry. The long beds, 2, 3, look a little more artistic with their ends rounded; but when planted and full they would have looked equally well as simple parallelograms.

FIG. 2.



The six small circles, No. 1, are each seven feet in diameter, filled with yellow *Calceolarias*, edged with the best *Lobelia speciosa*, and centered with fine specimens of *Humea elegans*. The four long beds, (2), seven feet by sixteen, *Brilliant Geranium*—and brilliant they were. Two long beds at each end, 3, *White Geranium Hendersonii* in the centre, with a broad band of *Tom Thumb*. Two 4s, *Flower of the Day* Geranium, mixed with *Géant des Batailles* Verbena. The circles, 5, in the centre being the base of elegant wooden vases, covered with bark and rising to the height of five feet; the top being some 30 inches or so across, and planted with *Alma Geranium*, edged with blue *Lobelia*; and a few creepers, as *Lophospermum* and *Maurandya*, fringing thinly the sides of the vase. 6, *Punch Geranium*, edged with *Cineraria maritima*.

I am no great advocate for placing elegant vases of any kind in the centre of beds; yet in this case the effect produced by them, as well as the *Humeas*, in lifting up, as it were, the whole group was very good. I had heard a great deal of the mixture of the *Flower of the Day* and the Verbena, and perhaps I expected too much from it. All ladies who have seen it and have mentioned it to me were delighted with it. The mode of management could not be beaten. The flowers were all removed from *Flower of the Day*. The Verbenas stood regularly over the bed—so thick as to make a regular curved outline with their flowers over the raised circle, and yet so thin as to show the foliage of the *Geranium* beneath them. Perhaps the sun was unpropitious that day; at any rate, I thought the light passing through the Verbenas gave the leaves of the *Geraniums* a sickly yellow-green hue. I can hardly, however, be a judge, as I have become pretty

well tired some time ago of mixing, and am getting back to letting colours show themselves distinctly. As confirmatory of my opinion, it came out that No. 6, with its dazzling scarlet centre and frosted-silver edging, was the favourite of Mr. Ames. No mixing could ever exceed the massive splendour of the four No. 2s filled with *Brilliant*. These two beds, No. 4, however, made a nice variety in the group, and sobered down somewhat the fiery scarlet in Nos. 2 and 3. The danger will be, that when a furor of mixing beds fairly sets in, we shall be likely to have a monotonous sameness instead of clearly defined, distinctive variety.

In front of the winding shrubbery, chiefly faced with laurels, which conceals the kitchen garden, is a narrow ribbon-border, some ninety yards in length, which looks all the better because it sweeps round in irregular bends and outlines, and is thus filled with five rows:—1st, next the grass, blue *Lobelia*; 2nd, *Golden Chain*; 3rd, *Punch Geranium*; 4th, *Calceolaria amplexicaulis*; 5th, next Laurels, *Purple Zelinda Dallia*. Near the extremity of the lawn on the same side, is a rosery, the beds being of a circular outline, and the openings between the plants enlivened with *Verbenas*, &c. On the opposite side of the lawn, near to the stable boundary, used to be a small flower garden, so shut and hedged in with trees and shrubs, that flowers could only exist. That has been so opened up, that the flowers have now a better chance, and can be seen from the terrace, &c.; but even now the place is so confined, that the beds can never hope to vie with those in front of the house. It would be an improvement to throw the whole into grass, or make that corner somewhat unique and distinct in itself, by a group of singular-foliaged plants,—as *Yuccas*, *Pampas Grass*, *Ferns*, &c.

When first I knew the Hyde, there were enough of fine things on the lawn to have served half a dozen places of the same size, and fast injuring each other. Mr. Ames has thinned out with great judgment, so as to secure more grass and fine specimens of trees and shrubs.

I find I have so exceeded my usual space, that I must stop with saying, that in the houses were good Grapes, and good Peaches on the walls; and, considering the season, Mr. Donaldson had more than his share of Pears, &c., on the walls. On entering from the lawn, the walk that led up to the houses was bordered with espalier trees, and in front of them a thin row of Hollyhocks, and a double row on each side of fine China Asters, some three feet in height. The front of the Vine border opposite was also occupied with Asters, finely arranged in groups as to colour, and the flowers, individually, very fine. The pits had a good supply of plants for winter and spring, and Azaleas, *Camellias*, &c., were in first-rate condition.

Adjoining to, but separated from the stables, is the farmyard, &c., in which Mr. Ames takes as much interest as the lady does in flowers. The compactness of the whole establishment is thus a great advantage.

R. FISII.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 308.)

PEARS.

Beurré de Pâques. See *Easter Beurré*.

Beurré de Paris. See *Jargonelle*.

Beurré de Payence. See *Calebasse*.

Beurré de la Pentecôte. See *Easter Beurré*.

Beurré Picquery. See *Urbaniste*.

Beurré Plat. See *Crasanne*.

Beurré Quetelet. See *Comte de Lamy*.

BEURRÉ DE RANCE (*Bon Chrétien de Rans*; *Beurré Epine*; *Beurré de Flandres*; *Beurré de Noirechain*; *Beurré de Noir Chair*; *Beurré de Rans*; *Beurré du Rhin*; *Hardenpont de Printemps*).—Fruit varying from medium size to large; obtuse-pyriform, blunt, and rounded at the stalk. Skin dark green, and covered with numerous dark brown russety spots. Eye small and open, set in a slight depression. Stalk an inch and a half long, generally obliquely inserted in a wide, shallow cavity. Flesh greenish-white, buttery, melting, and very juicy, with a rich vinous flavour.

A first-rate and delicious late pear, in use from

February till May. The tree is perfectly hardy, and a good bearer. In northern and exposed situations it requires a wall.

Beurré du Rhin. See *Beurré de Rance*.

Beurré du Roi. See *Brown Beurré*.

Beurré Rose. See *Beurré Bosc*.

Beurré Roux. See *Brown Beurré*.

Beurré Royal. See *Beurré Diel*.

Beurré St. Amour. See *Flemish Beauty*.

Beurré St. Nicholas. See *Duchesse d'Orleans*.

BEURRÉ SIX.—Fruit large, pyriform, bossed on the surface. Skin smooth, pale green, dotted with green and brown dots, and somewhat russeted. Eye closed. Stalk over an inch long, woody. Flesh white, tender, buttery and melting, rich and sugary, and with a high aroma.

A first-rate pear, ripe in November and December.

Beurré Spence. See *Flemish Beauty*.

BEURRÉ STERCKMANS (*Belle Alliance*; *Calebasse Sterckmans*; *Doyenné Esterkman*).—Fruit large, turbinate. Skin smooth, of a fine bright grass-green colour on the shaded side, and dull red on the side next the sun, marked with traces of russet. Eye open, set in a wide, shallow basin. Stalk three quarters of an inch long, set in a small round cavity. Flesh white, with a greenish tinge, very melting, buttery and juicy, rich, sugary, and vinous, with a fine aroma.

A first-rate dessert pear, ripe during January and February. The tree is an abundant bearer, succeeds admirably on the quince, and forms a handsome pyramid.

BEURRÉ SUPERFIN.—Fruit above medium size, roundish-obovate or turbinate. Skin of a beautiful lemon colour, very much covered with thin cinnamon-coloured russet. Eye small and open. Stalk inserted on the apex of the fruit without depression. Flesh very fine grained, buttery, melting, and very juicy, with a brisk piquant flavour, and fine aroma.

A first-rate dessert pear, ripe in the end of September and beginning of October. The tree is a vigorous grower, hardy and prolific, and succeeds well as a standard or pyramid.

BEURRÉ THUERLINCKX (*Thuerlincks*).—This is a large, coarse pear, of a roundish-obovate shape, five to six inches long and four or five broad. The flesh is somewhat tender and juicy, but without any aroma, and very soon becomes mealy. Not worth growing. Ripe in November and December.

Beurré de Terwerenne. See *Brown Beurré*.

Beurré Van Mons. See *Baronne de Mello*.

BEURRÉ DE WETTEREN.—Fruit large, roundish, inclining to turbinate, widest in the middle and tapering obtusely towards each end, uneven in its outline. Skin bright green and shining; dull red on the side next the sun, and covered with large russet spots. Eye open, deeply set. Stalk an inch long, stout, and deeply inserted. Flesh yellowish, coarse-grained, and soon becomes mealy. A showy and peculiar-looking pear, but of no value. Ripe in October.

BEZI DE BRETAGNE.—This is very similar in appearance to *Passe Colmar*, to which race it evidently belongs. The flesh is crisp, breaking, and very coarse-grained, very juicy and sweet, and exactly the flavour of *Passe Colmar*. It is a very good late pear, at least as good as pears generally are in March and April.

BEZI DE CAISSOY (*Besi de Quessoï*; *Nutmeg*; *Petit Beurré d'Hiver*; *Rousselet d'Anjou*; *Small Winter Beurré*; *Wilding of Caissoy*; *Winter Poplin*).—Fruit produced in clusters, small, roundish-turbinate. Skin rough, and entirely covered with brown russet. Eye open, set almost even with the surface. Stalk half an inch long. Flesh white, tender, buttery, sweet, and aromatic.

A very nice little winter dessert pear, ripening in

succession from November till March. The tree attains a large size, and is a most abundant bearer.

Bezi de Chaumontel. See *Chaumontel*.

Bezi d'Echassery. See *Echassery*.

BEZI D'ESPEREN.—Fruit about medium size, pyriform, and tapering from the bulge to either end. Skin clear, yellowish-green, mottled and shaded with fawn-coloured russet, and with a tinge of deep red. Stalk about an inch long, slender. Eye open, set in a moderately deep basin. Flesh white, melting, and buttery, very juicy, sugary, and perfumed. An excellent pear, ripe in November, but does not keep long.

BEZI GOUBAULT.—Fruit medium sized, roundish-obovate. Skin lemon-yellow, considerably covered with cinnamon-coloured russet, and strewed with numerous russety dots. Eye large and wide open, with broad segments, and very slightly depressed. Stalk slender and woody, set in a very narrow cavity, with a fleshy lip on one side. Flesh tender, half buttery, rather gritty at the core, and with a powerful rose-water aroma. March and April.

(To be continued.)

PROPAGATING ROSES—TAN AS A SUBSOIL.

I WANT to make some Rose bushes of Hybrid Perpetuals for planting out next summer. Which way will give me plants to bloom best—cuttings, layers, or winter-grafted plants?

I also want to raise some borders for flowers. Would spent tan do put eighteen inches below the surface, as I have a difficulty in procuring mould?

In THE COTTAGE GARDENER for July 12th was an article on the "Management of Rose-cuttings." I set to work as soon as I had read it, and put in between forty and fifty Hybrid Perpetuals of *Général Jacqueminot*, *Queen*, and *Triomphe de Paris*. Out of all these I have now only six alive. I thought at one time they would all live; but after making a start they drooped and died—the cause I cannot tell.—H. S., *Sheffield*.

[As to layering Roses to bloom next summer, that is now out of the question. Rose-layers will only root some time between May and October. As you made such an unlucky hit of striking Rose-cuttings in summer, depend upon it you will not strike half a dozen this winter that will bloom next summer. For it is a well-known fact that any person who cannot strike Rose-cuttings in summer as fast as a gardener will never be able to do so in winter. That part of the question is also settled. But about grafting. The question depends entirely upon whether you are an expert practiser of grafting generally. A tolerable grafter could well manage to work off from 600 to 1000 grafts of Roses every week from November to May; and if the kinds were of free-flowering ones, they would all bloom from April to June, and from June to this time. Grafting is like writing, it takes a long time to learn; and there are some people who can never learn successful grafting, or write a good hand. Graft as low as you possibly can; graft by the fireside, like the man of York; graft twice as many as you want to make a sure hit of, and do not begin before February.

You may safely raise the flower-borders a yard higher than they are at present with old tan or anything, if you have eighteen inches of soil over it. Stamp down the tan very hard indeed, to keep the borders from sinking down again by the rotting, or more thorough rotting, of the tan.]

HOLCUS SACCHARATUS.

As you ask for information respecting the *Holcus saccharatus* from persons who have grown it, I beg to inform you that in May I planted some seed, which shortly came up. At first the plants did not grow much, but looked yellow, and I was afraid would come to little good. However, when the hot weather came the plants grew so rapidly that they quickly ran up to five feet high. I have fed my horses on *Holcus*, and they eat it readily. I have cut it twice. The canes are of great weight. I consider the *Holcus* a useful and valuable food for horses doing slow work.—C. D. EVERETT, *Besselsleigh*.

We extract the following on the same subject from the Dublin

Weekly Agricultural Review of Sept. 9th. It is signed "A SOUTHERN FARMER."—"The extreme drought of this summer, and the danger that menaced the Mangold and Turnip crop, induced me to try some of this new forage plant. I was later than is recommended, as I did not think of sowing until the Mangolds seemed to have failed. My plot is about half an acre (it is portion of the field in which the Mangolds had failed); the ground, which had been reduced to a fine tilth and was designed for Turnips, the manure applied on the flat and ploughed in, and the seed was sown in drills. It was steeped for rather more than twenty-four hours, as my steward expected to have had all the land ready on a Saturday, and to have got it sown; but he was not able to accomplish this, and about one-half was ploughed, and the remainder had to remain until Monday, when all the seed was sown. But in the portion of the field that was ploughed on Monday it came up much more vigorously, and that portion continues the best. The sowing took place about the middle of June, and in part of the field the crop is over three feet high, with broad luxuriant leaves; it has grown up like canes, and has not tillered or become bushy at the bottom. The stem near the ground has a taste very similar to the stumpy portion of a Cabbage leaf. I intend to commence cutting it for soiling next week."

VARIETY IN A SMALL GREENHOUSE.

I HAVE a greenhouse full of the better kinds of Geraniums and Fuchsias, but am in want of some variety. Will you be good enough to furnish me with a list of about a dozen sorts of plants that will bear the common treatment of the above? I am not anxious for newly-introduced plants as long as they are showy, and not too expensive.—A CONSTANT READER.

[You must have three distinct kinds of Acacias to begin the spring with—say one of the earliest, one for the middle season, and a late one; but the management of the year before will make any of them late or early at will. *Armata*, *grandis*, and *longiflora* would do; and you ought to have them at the price of a common Fuchsia, or a good pot Geranium. Then you ought, certainly, with such a greenhouse as yours, to have three or four distinct kinds of Chinese Azaleas—little plants at from 1s. to 2s. each would do: the old white, the old variegated, and the oldest scarlet and orange kinds. But it is far better to consult a respectable dealer, as when you go to market with a ready-made list in your hand, of course the dealers will know you have picked the best, and they will charge one-third more for the plants. But in Acacias, Azaleas, and Camellias, and, indeed, in all the families we recommend, there are several kinds, every one of which is just as good as any other, and the kind you ask for may be scarce that season. With all our knowledge of these things we never buy three plants at a time without "talking it over" with the nurseryman. You must have three kinds of Camellias, if you pinch in other quarters—a variegated, a double white, and a rose or scarlet kind. *Fimbriata* is the best white Camellia in the world, and it is as cheap as some two-year-old Fuchsias; and so is *Elegans* the best rose for such a house as yours; and *Imbricata* will be variegated sometimes, and all scarlet at other times. One *Correa* at least you should have, one *Coronilla*, and one *Cytisus*—all these are spring flowers which come early or late, as you choose and manage. After the Geraniums come in nothing is so good as they and Fuchsias; and when they are over there are very few really good greenhouse plants to bloom without much care and trouble. But Balsams, Cockcombs, China Asters, Primroses, and Cinerarias, double Petunias and such Scarlet-breed Geraniums as *Kingsbury Pet*, *Shrubland Cream*, *Countess of Bective*, *Lizzy*, *Boule de Nieve*, and all the Nosegays, are as good in-doors in pots as any of the race, and are to be seen in the best conservatories.]

BULBS FOR BEDS.

I SHALL be obliged if you will recommend me what you think are the best bulbs to have in the different beds in the enclosed plan? In the spring you gave me directions for filling them with the different bedding plants, which directions I have strictly adhered to, and they are, and have been for some time, the admiration of all who have seen them.—AN OLD SUBSCRIBER.

[This being about the time for a great number of people to begin to fidget about planting bulbs in beds, let us proclaim,

that it is yet two months, if not three months, too soon to put a single bulb, or a double bulb either, in any one flower-bed in Her Majesty's British dominions. Also, that it is just now one month behind the right time for all the spring bulbs to be in the ground. Of all the improvements which we should like to effect and to push into the exact groove for that end, none is of more importance than that all flower-garden bulbs should be in the ground by the middle of September. Ours were all bedded in the framing-ground by the 14th of the month, and some of them have already made great progress in the roots with the warm light rains. Every week now that the bulbs are out of the ground they lose one month's strength from it, which is one-twelfth less strong to stand over another season. Those who do not put them in the soil before the end of October lose eight months out of twelve in the keeping and strength of their future bulbs. The wonderful superiority of massing colours in bedding plants over the old dotting and patching has so endeared one's garden to all who see it, that every plan and move for prolonging it, at the end of the season, are resorted to for keeping it up to the last moment. Then it takes a good while, with all one's hands, to clean and clear up the garden, store away the plants for the winter, and regulate the flower-beds for the winter and for spring work, and all this time it is far worse than useless to think of putting a single "root" into one of the beds or borders. That being so, we should be most surely in a great fix if the spring bulbs must be first set in the places where they are intended to flower. The whole race of them need no such treatment at all; but one and all of them are endowed by Nature with a force which is sure and as certain as instinct is in animals. That force is absolute, and to force and fight against it is another absolute not worth naming just now. That force begins its sway each year by the beginning of August, moving for the production of a fresh set of roots. As soon as the point of the first roots feels the air, that bulb is out of its element—the soil. Nothing on earth, or in the brains of men, will ever alter this force in the autumnal-rooting bulbs, which suffer in different degrees by being out of the ground one moment longer than is natural for them to make roots. But with two or three inches of soil over them and about them in the spare ground, every one of them will keep quite safe till the month of February, if need be, and to the time, if earlier, the beds are made ready for them.]

BRITISH POMOLOGICAL SOCIETY.

A MEETING of the British Pomological Society was held at St. James's Hall on Thursday last. Robert Hogg, Esq., Vice-President, in the chair.

The following twelve gentlemen were elected ordinary members:—

GEO. KIRKPATRICK, Esq., Newport, Isle of Wight.
 JOS. FARROW, Esq., Oatland House, Bungay.
 GEO. KNAVETT, Esq., Mogden House, Isleworth.
 JOSIAH MOORMAN, Esq., Bexhill, Sussex.
 J. J. DRAPER, Esq., 2, Wellington Street, Strand.
 MR. G. JACKMAN, jun., Woking, Surrey.
 MR. JOHN CATTEL, Westerham, Kent.
 MR. JAMES DUNCAN, Basing Park, Hants.
 MR. G. CAMERON, Goodwood Park, Chichester.
 MR. W. FORSYTH, Gunnersbury Park, Ealing.
 MR. JAS. DALE, Brancepeth Park, Durham.
 MR. NATHAN COLE, 42, Albany Road, St. John's Wood.

Several more of the present members, being private gentlemen or nurserymen, consented to be placed on the list of those subscribing One Pound annually.

At this Meeting prizes were offered for the best collections of Grapes, which were competed for by Mr. Hill, gardener to Ralph Sneyd, Esq., of Keele Hall, Staffordshire, and Messrs. Lane and Son, of Berkhamstead. Mr. Hill's consisted of thirteen very distinct sorts, among which were *Trentham Black*, *Lady Downe's*, *Early Saumer Muscat*, *Golden Hamburgh*, and *Bidwell's Seedling*. The first and *Golden Hamburgh* fully maintained the high character they have already earned, both as regards the size of the bunches and berries, and flavour. *Lady Downe's* was not ripe, but well grown; and *Bidwell's Seedling*, a long loose bunch in the way of *Black Prince*, was quite ripe, but the flavour was destroyed by being in contact with some substance, or by some application. *Early Saumer Muscat* has a small bunch and berry, the latter of an oblate shape. It is a nice sweet Grape,

but there was no trace of Muscat flavour about it. The first prize was awarded to Mr. Hill, and the second to Messrs. Lane. In the collection of the latter were about fifteen varieties, among which were the *Bowood Muscat* and *Muscat of Alexandria*; the bunch of the former being decidedly smaller, but better set than that of the latter. *Golden Hamburgh* was in admirable condition. Nearly all the others were unripe, being grown in an orchard-house open at the ends; but Messrs. Lane intend to exhibit the same collection at one of the October Meetings, when they will be in better condition.

F. J. Graham, Esq., of Cranford, again exhibited his Seedling Grape, the flavour of which was exquisite; there was but one or two berries cracked, and, to ascertain whether it really is an improved form of Chasselas, or a distinct variety, Mr. Graham intends another year to grow both together in the same house.

A prize was also given for the best dish of Apples of any kind, and the first was taken by Mr. Whiting, of the Deepdene, with *Ribston Pippin*, the flavour of which was unexceptionable; and the second by Mr. Swinerd, of Minster, also with *Ribston Pippin*, but the flavour was not equal to those of Mr. Whiting's; both, however, were very fine specimens.

Another prize was offered for the best dish of Pears, which was taken by Mr. Whiting with *Brown Beurré*; the others exhibited being either not ripe, or too far gone.

Josiah Moorman, Esq., of Bexhill, Sussex, sent a Seedling Pear named *Archdeacon's Gansel*. This is evidently of the Gansel's Bergamot race, and a very excellent pear, but it has not the high aroma and flavour of the old Gansel, and the flesh is more crisp.

There were many other exhibitions of Apples and minor fruits, a report of which will appear at full length in the Society's circular.

The question of the election of a new Secretary to succeed Mr. Davidson was again brought forward, and Mr. Davidson having expressed a willingness to continue in the office if the salary were increased, it was thought by several members present that it would be to the advantage of the Society now that it was acquiring a position of so much importance that no change in the management should take place, and that Mr. Davidson's offer be accepted.

NOTES ON NEW OR RARE PLANTS.

SCUTELLARIA VENTENATII. Hook. Nat. ord., *Labiatae*. Native of Santa Martha; and introduced about the year 1845 into this country by Mr. Purdie.—A perennial with sub-herbaceous stems and branches. Branches somewhat erect, quadrangular. Leaves opposite, petioled, ovate, with a cordate base; veins reticulated; margin dentato-serrate, covered with downy hairs. Flowers in terminal, elongated racemes, with downy peduncles and pedicels, and deciduous bracts. Calyx somewhat campanulate, with two equal, entire lips; crested, covered with very short, downy hairs. Corolla with a much elongated tube, narrow at the base, but gradually dilating towards the limb, which is two-lipped; the upper lip arched over and composed of four lobes, and the lower one consisting of one flattish piece. Stamens four, included within the corolla.

The genus *Scutellaria* contains some very handsome species, both tender and hardy, and the above is one of the best of the tender kinds. Its flowers are scarlet, and may be had in profusion at all seasons of the year; the brilliancy of which makes it a first-class ornamental plant. It will succeed well in either a stove or greenhouse, in a compost of partially decomposed leaves and sandy loam, about two parts of the latter to one of the former.

If it is desired to have a succession of flowers from the same plant, it should be cut back when the first flowering is nearly over; and if excited a little by heat it will shoot again, and flower as profusely as before. Cuttings root freely.

LAPAGERIA ROSEA. Rinz and Pavon. Nat. ord., *Smilacæ*. Native of Chili.—Introduced to this country about the year 1847. Stems climbing, extending far, branching, round, scaly on the lower parts. Leaves ovate-lanceolate, acuminate, with five rather prominent nerves, and reticulate veins. Flowers solitary and axillary on peduncles of moderate length, pendulous. Perianth composed of six sepals, the outer three of which are often unequal, spatulate, gibbous at the base, deep-rose colour, spotted faintly with white; the inner three are broader, more equal, and the white is more intense, and without the gibbosity at the base. Stamens six, with flattened, subulate filaments, and broad, yellow

anthers. Ovary oblong-ovate, three-valved. Stylo long, round. Stigma triangular.

This beautiful plant is rapidly becoming a great favourite with British cultivators of ornamental plants; and no wonder that it should be so, for no admirer of fine flowers could look upon this with indifference. The aptest resemblance I can think of is, to suppose the flowers of some fine *Alströmëria* growing upon the twining stems of a *Smilax*. It succeeds admirably in very turfy, sandy peat, well drained, and in the growing season it must be well supplied with water. The flowering season is in August and September. Propagates by division.—S. G. W.

TO CORRESPONDENTS.

SHEET CALENDAR (C. H.).—We printed one for the Kitchen Garden, but have not a copy left. Our "Calendar of Out-door gardening" is the one of most ready reference that we know.

FIG-TREE BLOSSOM (F. A. H.).—The blossom is inside what is called the fruit, but which, really, is only a hollow common calyx, or rather receptacle, lined with numerous flowers. These are seldom both barren and fertile in the same Fig, and as this receptacle has a very small opening at the summit, the seeds usually would not be perfected, if some very small ichneumon flies (*Cynips*) did not fly from Fig to Fig, for the purpose of laying their eggs within the receptacle, carrying pollen adhering to them.

TURNIP SAW FLY (F. C. Lynnington).—The insect you sent is the female of the *Athalia spinarum*, the larva of which is called *Black Palmer*, *Black Canker*, *Black Jack*, &c. You will find a very full and interesting history of it in "Curtis's Farm Insects," which we noticed last week.

KEEPING PLANTS UNDER HAND-GLASSES IN WINTER (I. H. J.).—None of the plants you mention will keep over the winter under a hand-glass, and there is not the slightest reason to winter blue Lobelias at all, as *speciosa*, the best dwarf blue, comes quite true from seeds in the spring. The best long trailing one to hang over baskets or vases is *gracilis*, and no plant comes more true from seeds. If *Tom Thumb* Geranium is well rooted, it will plant out of anything, from a cutting-pan to a tin kettle, but it requires considerable care to keep old plants of it, and of *Flower of the Day*, as you propose. First strip every leaf off them, and do not let them get quite dry. You are quite wrong about the Fuchsias. If Fuchsias would flower in the winter by merely pinching them back in the autumn, what could hinder all greenhouse plants from blowing all the winter?

FRUITS FOR THE SOUTH OF ENGLAND (A Lover of Fruits).—The following arranged in the order of their ripening, will suit you:—APPLES.—*Irish Peach*, *Kerry Pippin*, *Cor's Orange Pippin*, *Margil*, *Nonpareil*, *Sturmer Pippin*. PEARS.—*Williams's Bon Chrétien*, *Louise Bonne of Jersey*, *Marie Louise*, *Winter Nelis*, *Josephine de Malines*, *Beurré de Rance*.

PURPLE JACOBÆA (Annie).—The seeds of this plant do not deserve to be saved. There are two kinds of real double Jacobæas, dark purple and red purple, and these root from cuttings in the spring or autumn faster than the Verbenas, and the common soil of an old flower-bed, without a morsel of dung or leaf-mould, suits it best. Even if every seed of Jacobæa made a double flowering plant, such plants go all to straw, leaf, litter, and disappointment.

CONVOLVULUS MAJOR VARIETY.—"Miss Fletcher, 2, St. Thomas Gardens, Queen's Road, Kentish New Town, near Haverstock Hill," offers to send some seeds of a variety having a trilobate leaf, to any one forwarding to her a stamped and directed envelope.

CEMENT FOR MARINE AQUARIUM (Dolce).—Either pumice stone, or elinkers from a coke oven, cemented together by Portland Cement, will answer for making a rockwork in your marine aquarium.

WALTONIAN CASE (J. R.).—The Case is registered, we believe, and, if so, no one has a right to make it. We have heard no more about the caudles for heating it.

DIANTHUS HEDDEWIGHI (Amateur and others).—Messrs. E. G. Henderson and Son inform us, that the best time to sow it for strong early plants, is as soon as possible after the seed is matured in August, which will admit of the seedlings being potted off separately, or otherwise, at discretion. If sowing be deferred until late in the autumn, sow, but in part, and the remainder in early spring, and in each case the seed-pans to be placed in a warm greenhouse, or ventilated pit, with good exposure to light, and attention to watering as required, they never being allowed to remain dry over night, if needing moisture. To quicken the progress of the autumn sowing in the pit, it should be closed up each afternoon with a genial warm temperature. In height, the species is from twelve to sixteen inches, and in duration, the plants are of biennial growth; but, in vigorous health, blooming profusely the first season, and partially the second, if the upper flower-stems are cut off as early as practicable in autumn. The blossoms of this highly ornamental-flowering plant are from two to three inches in diameter, usually of exceedingly rich crimson colours, with broad rose belts, and brilliant dark centres, but others are richly mottled and streaked with white, and uniformly fringed on the margin.

REVIVING OLD HOTBEDS (H. M.).—We cannot give you more information than was contained in the extract we published from the American Journal. We published it for the purpose of rousing attention to the subject, and inducing experiments. If you try any we shall be much obliged by a report of the results, favourable or unfavourable.

PRUNING APPLE TREES (A. M. S.).—Not knowing whether your trees are against a wall, or are espaliers, or standards, we are quite unable to advise you how they "should be trimmed." Buy our "Fruit Garden for the Many."

SEEDLING GERANIUM (The Glen).—The petals are of the brightest scarlet we ever saw. If the trusses are abundant, in good succession, and well up above the foliage, and if the plant is of dwarfish habit, it will be an acquisition and might be called "Flower of the Glen."

GRAPES FOR THE OPEN AIR (A Constant Subscriber from the Beginning).—The best for out-doors against the south-west wall of a house are *Early Black Muscat*, *Muscat St. Laurent*, *Black July*, *Early Malingre*, *Miller's Burgundy*, and *Royal Muscadine*. In a month hence you can obtain all the above, in pots, and plant them immediately.

Sorgho (Agriculator Ignoramus).—The plant you mean is, doubtless, the Sorgho (not Shargo), or *Andropogon Sorghum*, called in this country Indian Millet or Guinea Corn. It is quite a distinct plant from *Sorghum saccharatum*.

CRYSTAL PALACE HORTICULTURAL SHOW.—"In No. 572, Sept. 13, page 348 of THE COTTAGE GARDENER, Crystal Palace Exhibition, Sept. 7, there is the following paragraph—"There were five pots of *Black Hamburgs*, and one of them (No. 16) from Mr. Burnell, gardener to H. F. Williams, Esq., Lower Norwood." As I am the person intended, I should feel much obliged if you could find a spare corner in the next number of your valuable publication to correct it as under—"Mr. BENNETT, gardener to H. J. L. Williams, Esq., South Norwood." I obtained the prize for Gourds, which is not noticed."

"You say of variegated plants, 'First prize to Mr. Young; second, Mr. Bunney.' Now Mr. Young shows in the amateur class, and Mr. Bunney is a nurseryman. Mr. Young was first in the amateur class; but as Mr. Bunney did not show against him, he can scarcely be said to be second to Mr. Young. In the class in which Mr. Bunney showed we were awarded the first prize; and also in the open class of ten fine-folaged plants we were awarded first prize."—THOS. JACKSON & SON, Nurseries, Kingston-on-Thames.

SUBSTANCE IN STAGNANT WATER (An Inquirer).—It is one of the fresh-water sponges.

PINE APPLE PIPPIN (C. R. S.).—This is a synonyme of *Lucombe's Pine Apple*. If true to name it has a yellowish-white flesh, with a sugary juice, having a rich Pine-Apple flavour. It is in perfection during October, November, and early December. It was raised by Messrs. Lucombe, Pince, & Co., Nurserymen, Exeter, and is a first-rate dessert Apple.

ICE (Idem).—You will find directions for preserving this in our Nos. 114 and 276.

SOWING POTATO SEED (M. I. I.).—Squeeze the ripe Potato-apples in water, strain all through a cloth, dry the seed before the fire, and keep it in a dry place. In February, if you have the convenience of a hotbed or hothouse, let it be sown thinly in flower-pots of rich light earth, and cover very lightly. In a month or six weeks, or as soon as the young plants are an inch high, they are to be raised carefully, and planted singly in small pots, and placed in a frame where they will have a very little warmth, and where they must have plenty of air and water as required until the middle of May, when they may be turned out of the pots into the open ground, without breaking the ball. By this treatment the Potatoes will be so large the first year as to enable you to judge of their merits. If you cannot command artificial warmth, sow the seeds in shallow drills of light rich earth early in April, and transplant the young plants into rich earth in June; raise the Potatoes at the usual time, and treat them afterwards in the usual way: they will prove themselves the second year.

STRAWBERRY PLANTS (A.).—The name of the person you inquire about is George Lee. The plant is *Sagina procumbens*, a very different thing from *Spergula pilifera*.

NAMES OF FERNS (Lichfield).—Your Ferns are, 1, *Doodia media*, sometimes called *lanulata*. 2, *Phlebodium aureum*, formerly *Polypodium aureum*. 3, *Pteris hastata*, by some called *Pellaea hastata*. 4, *Polypodium vulgare*, var. *cambrieum*.

NAME OF INSECT (Annie).—Your insect was too much damaged for us to be sure of its species, but it is one of the genus *Haltica*, or earth-beetles, to which the "Turnip Fly" belongs. No remedy is known. Burning weeds, so that the smoke passed over the plants might, perhaps, drive them away.

NAME OF PLANT (M. J. T.).—Your plant is the *Rivina lavis*, the Smooth Rivina, a pretty little stove plant, being always both in flower and fruit at the same time.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

OCTOBER 5th. WESTON-SUPER-MARE. Sec., Mr. R. L. Jones, Weston-super-Mare. Entries close September 23rd.

OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. Sec., Geo. Griffiths 7, St. Swithin Street, Worcester. Entries close September 24th.

NOVEMBER 19th to 23rd. CRYSTAL PALACE. (Canaries and British and Foreign Cage Birds). Sec., Mr. W. Houghton.

NOVEMBER 28th, 29th, and 30th, and DECEMBER 1st. BIRMINGHAM. Sec., Mr. J. Morgan, Bingley Hall, Birmingham.

JANUARY 7th, 1860. BRADFORD. SINGLE COCK SHOW. Secs., Mr. Hardy, Prince of Wales Inn, Bowling Old Lane, and Mr. E. Blackbrough, Black Bull Inn, Ive Gate, Bradford.

FEBRUARY 11th to 15th, 1860. CRYSTAL PALACE (Poultry and Pigeons). Sec., Mr. W. Houghton. Entries close Jan. 14th.

N.B.—Secretaries will oblige us by sending early copies of their lists.

KEEP PURE-BRED FOWLS.

THE poultry question is daily becoming better understood. It is no longer thought necessary to have a large estate in order to afford accommodation for a few fowls; nor is it now believed by those who will take some little trouble, and exercise ordinary care and supervision, that a small poultry-yard is an ever-craving and insatiate monster that will consume a small income. There, however, remains one more point to be insisted upon.

Like the rest of the world at this time, we steal a holiday; and it need not be doubted that we are irresistibly drawn to those spots where there is poultry. In our wanderings, our love of the subject or subjects has afforded us many pleasant hours, and given us introductions to resting-places that have lightened a long walk, and refreshed us when somewhat weary. The appearance of a hencoop on the grass, the Spanish cock that looked perfect in the distance, the hoarse crow of a Cochlin, or the stately form of a Dorking, have emboldened us to ask to see the poultry, and we have enjoyed the intercourse which we have tried to make profitable to those to whose courtesy we have been indebted.

We have seen many good specimens, but we have been surprised, in some instances, to be told, smilingly, "Quite welcome to see them; but I doubt whether they are worth the trouble." We thought the day was gone by when any one would keep a mongrel fowl, but it is not. We have seen creatures that were originally that nondescript animal called a barndoor fowl, but that have bred in-and-in till they are like nothing. Now, seeing these creatures eat as much as the most valuable fowl, and that they are not even pleasing to the eye, we have said, "Why, do you not keep pure fowls?" Always is returned the same answer, "The truth is, I am getting careless about them: they lay badly; they breed fewer chickens every year; and *they* are so sickly, I am tired of it." We determined, as soon as we returned, to commit our thoughts to paper.

When only a few breeds were cared for, some years ago, and they realised most ridiculous prices, we can understand why people hesitated before they bought, and put up rather with what they had. But now, when every breed is fully known in its habits, excellencies, and requirements—when they are to be purchased at Shows or otherwise at very moderate prices, we cannot understand why worthless things are kept. The carelessness as to breed and the non-introduction of fresh blood are the causes why poultry in many places is so little appreciated. With no other outlay than the purchase-money a breed may now be had that will be beautiful to look at, prolific and profitable, either for eggs or chickens, as may be desired.

BRIDGNORTH POULTRY SHOW.

SEPTEMBER 22nd.

THE Judge was Mr. E. Hewitt, of Spark Brook, near Birmingham. We reserve our notes until next week.

COCHIN-CHINA (any colour except White or Black).—First, G. C. Peters, Birmingham (Buff). Second, J. K. Fowler, Prebendal Farm, Aylesbury (Buff). Highly Commended, G. Lamb, Red Hill House, Compton, near Wolverhampton (Partridge); J. K. Fowler, Prebendal Farm, Aylesbury (Partridge); W. Harvey, Sheffield (Buff); G. C. Peters, Birmingham (Partridge).

COCHIN-CHINA (White or Black).—First and Second, G. C. Peters, Birmingham (White). Commended, W. Harvey, Sheffield (White).

DORKINGS.—First and Second, J. Whittington, Wootten Waven, Henley-in-Arden. Highly Commended, J. Martin, Claines, Worcester; J. E. Wilson, Clifton Cottage, Claverley. Commended, Mrs. M. Seamons, Hartwell, Aylesbury (Coloured); J. E. Wilson, Clifton Cottage, Claverley.

GAME (Black-breasted and other Reds).—First, J. Martin, Claines, Worcester. Second, Mrs. M. Seamons, Hartwell, Aylesbury.

GAME (White and Piles).—Prize, J. B. Chune, Coalbrookdale.

GAME (Duckwings and other Greys and Blues).—First, J. B. Chune, Coalbrookdale. Second, W. Harvey, Sheffield (Duckwing).

GAME (any other variety).—First, G. C. Peters, Birmingham (Black). Second, J. B. Chune, Coalbrookdale.

GAME COCK.—First, W. T. Hill, New Inn House, Claverley. Second, G. C. Peters, Birmingham.

HAMBURGS (Golden-pencilled).—First, J. Martin, Claines, Worcester. Second, J. B. Chune, Coalbrookdale. Highly Commended, W. Harvey, Sheffield.

HAMBURGS (Golden-spangled).—First and Second, J. B. Chune, Coalbrookdale. Highly Commended, G. C. Peters, Birmingham.

HAMBURGS (Silver-pencilled).—Prize, J. Martin, Claines, Worcester.

HAMBURGS (Silver-spangled).—Prize, W. Harvey, Sheffield.

POLANDS (Black with White Crests).—First and Second, E. W. Haslewood, Bridgnorth.

POLANDS (Golden-spangled).—First, E. W. Haslewood, Bridgnorth. (Second prize no competition.)

POLANDS (Silver-spangled).—First, W. Harvey, Sheffield. Second, G. C. Peters, Birmingham.

SPANISH.—First and Second, J. Whittington, Wootten Waven, Henley-in-Arden. Highly Commended, J. Martin, Claines, Worcester.

ANY OTHER VARIETY.—First and Second, W. Harvey, Sheffield (Light Brahma Pootras and Pencilled Brahma Pootras). Highly Commended, J. Martin, Claines, Worcester (Brahma Pootras).

BANTAMS.—First and Second, G. C. Peters, Birmingham (Silver-laced and Gold-laced). Highly Commended, W. Harvey, Sheffield (White); J. Martin, Claines, Worcester (Game); J. B. Chune, Coalbrookdale (Black-breasted Red). Commended, J. Martin, Claines, Worcester (Laced).

DUCKS (White Aylesbury).—First, Mrs. M. Seamons, Hartwell, Aylesbury. Second, J. K. Fowler, Prebendal Farm, Aylesbury. Highly Commended, Mrs. M. Seamons, Hartwell, Aylesbury; J. K. Fowler, Prebendal Farm, Aylesbury. Commended, H. Smith, jun., New House, Sutton Madcock, Shifnal.

DUCKS (any other variety).—First, J. K. Fowler, Prebendal Farm, Aylesbury (Rouen). Second, J. Martin, Claines, Worcester (Black East Indian). Highly Commended, G. C. Peters, Birmingham (Rouen); J. B. Chune, Coalbrookdale.

POULTRY FOR A GARDEN.

We are of the somewhat-numerous class who inhabit what is called a villa, with a small garden and lawn, in a suburban district of town; and we are admirers of animate as well as inanimate nature. We grow a good many flowers—and who is there that reads *THE COTTAGE GARDENER* who does not? And we also keep fowls. We should like extremely to see the latter on our lawn; but then their propensities are not altogether consistent with good gardening. My wife, however, of late has taken a strong fancy to have a pair of Pea fowls, male and female, as an ornament to the garden; but we are not willing to make the experiment without first consulting you upon the subject. If, like fowls, they are much in the habit of raking the beds in their own fashion, or nipping off the heads of our pinks or carnations, we would rather dispense with them; but if they will be decently behaved, and only rid us of some of the pests of the garden, we should be proud of their company. Now, will you be so good as to inform us, whether, in a small garden of, say, a quarter of an acre, with an outlet into a small paddock, a pair of Pea fowls would be mischievous or inconvenient visitors? and if so, can you mention any ornamental description of fowl which might be admitted without damage to the beds or destruction to the flowers? We are told that some of the Cochlin China do not scratch; and if we could not tolerate the Pea fowls we should not object to a few of them.—*RUS IN URBE*.

[The Italians say of the Peacock, he has the plumage of an angel, the voice of a devil, and the appetite of a thief. We believe it all, and we are sorry to add, that in a garden the Pea Fowl is more destructive than all the pests you are anxious to get rid of. The only fowls we know that are not only harmless, but, perhaps, useful, are Bantams of any variety. We have seen a score of them in the garden of an amateur to whom the suspicion of a scratch would have been agony; and we have ourselves, in a very small one, six that have lived there for weeks in a most creditable, if not useful manner. But you have ample space for fowls without interfering with your garden. Six yards square of your paddock would suffice for a run of Cochins, and they would be securely confined by a fence three feet high, or if the outlet were closed, they would never seek to fly over the gate. A similar space covered at the top would do for Brahmas or Spanish. All except Bantams are particularly fond of making a hollow on the edge of a flower-bed, and there lying on their sides with one wing up, enjoying the dust-bath or the sun.]

SPARKENHOE FARMERS' CLUB,

EXHIBITION OF POULTRY, PIGEONS, AND RABBITS.

To those most conversant with poultry, there cannot be a second opinion that the best exhibition that has ever taken place in connection with the Sparkenhoe Farmers' Club is the one just concluded at Ashby-de-la-Zouch. The grounds of the Royal Hotel are peculiarly well-adapted for such a Meeting, being at once picturesque and extensive, besides being immediately adjacent to the railway station—another feature highly calculated to increase the attendance of visitors from a distance. To the Stewards, Messrs. George and Edward Lowe, Mr. C. Hopkins, and Mr. James Baker, our highest encomiums are due; nothing could exceed the excellence of the arrangements throughout, and it must have afforded gratification to those gentlemen to hear the spontaneous expressions of approval that were manifested by all amateurs present.

We must now call the attention of our readers to the various classes. First, then, for a *Silver Cup* of five guineas' value. This brought out no less than twelve competitors. The poultry competing for this prize, being entered exclusively for the cup, did not compete in the classes for their respective varieties. Thus

the emulation to procure this silver trophy proved how highly it was esteemed, as, from the fact just stated, it will be seen no opportunity remained to the deflated pens of attaining any other mark of approval (however good their quality), save high commendations. As will be seen by reference to the prize list Mr. John G. Ayre, of Coleorton, was the successful one, with three excellent pens, comprising Hampden and Spanish Geese, and White Game fowls. All these birds were shown in the best of condition. Mr. Ayre, however, was very closely run by Mr. Henry Lowe, of Comberford Lodge; Mr. Baker of Dordon Hall, and Mr. W. J. Everard, of Bardon Hill House. Between the latter three gentlemen the race was, indeed, a neck-and-neck one, Mr. Henry Lowe being somewhat in the ascendency.

In the *Spanish* class there were many excellent individual birds exhibited; but the greater proportion were sadly out of feather, as being in deepest moult.

In *Dorkings* most of the birds were excellent. Sir H. W. Des Vœux, Bart., of Drakelow Hall, being pressed very closely in competition, by pens the property of the Moira Colliery Company, the Countess of Chesterfield, and Mr. James Tomlinson, of Southwood.

In White *Dorkings* there was nothing of extreme merit.

The *Cochin* classes were not worthy of especial remark.

As is now-a-days generally the case, the *Game* classes were the pride of the Show-tent. Almost every pen was evidently bred and exhibited by parties well-knowing all the essentials to success in Game fowls. Two very often exposed "mistakes," however, were here again committed by exhibitors—viz., penning strange fowls together, to the utter sacrifice of one or more specimens in a pen, as show birds, or placing fowls of diverse-coloured legs in the same pen. Surely exhibitors will eventually see the folly of so doing, as no mode of procedure they could devise would tend so surely to the total frustration of their hopes of success.

No variety of *Hamburghs* (Golden-pencilled excepted), was so good as we anticipated.

The *Polands* afforded a very limited entry.

In *Aylesbury Ducks* the Show was complete, and the Rouens were many of them superior. No specimens need be desired, however, better than the Buenos Ayrean Ducks belonging to Miss Steele Perkins, of Sutton Coldfield—they were such a pen as is but rarely to be met with.

The *Turkeys* and *Geese* were far beyond mediocrity.

In the class for *Bantams* were several pens of excellent Game; but we could not help noticing an attempt at imposition, by "dubbing," to get rosey-combed hens passed in this variety. They, however, were only deemed as unworthy.

In *Pigeons* this Show stood very highly, every class was well filled, and with the best of specimens. In the extra class for Pigeons the competition was so excellent, that, at the suggestion of the Judge, Mr. Edward Hewitt, of Spark Brook, near Birmingham, four equal extra prizes were awarded, independently of the one offered originally by the Committee.

We cannot refrain from speaking very highly of the classes for *Rabbits* likewise. They were uniformly good throughout, and the competition so very severe, that the premium for weight was won only by two ounces, and that for length of ears by three-sixteenths of an inch! Mr. John Spencer's Rabbit (the winner by weight) was a beautiful fawn-coloured one throughout; as was also the winner for the best Rabbit of any kind, the property of Mr. Edward Swinnerton, of Newton Regis, near Tamworth.

The weather proving favourable, the attendance of the aristocracy was far greater than on former meetings of this Society, the neighbourhood of the show-yard being literally thronged with carriages, whilst each arriving train added hundreds to the visitors. Still the grounds afforded the most comfortable accommodation for all; nor do we ever remember seeing any exhibition that passed off more satisfactorily throughout. It was also the subject of general remark, that, considering the season of the year (moulting time), few exhibitions could boast of better condition than the bulk of the poultry exhibited at Ashby-de-la-Zouch.

A SILVER CUP for the three best pens of Poultry of any variety.—CUP, J. G. Ayre, Coleorton (Spanish Geese, Geese, and White Game). Highly Commended, J. M. Baker, Dordon Hall; H. Lowe, Comberford Lodge (Dark Game, Pencilled *Hamburgh*, and Coloured *Dorking*); W. J. Everard, Bardon Hill House (Black-breasted Red Game, Pile Game, and Black Spanish). Commended, J. Faulkner, Bretby Farm (Pencilled *Hamburgh*, Red Game, and *Dorking*).

SPANISH.—First, J. Choyce, Harris Bridge, near Atherstone. Second, E. Morley, Sapcote, near Ilkeley. Highly Commended, the Countess of Chesterfield.

DORKING (Coloured).—First, Sir H. W. Des Vœux, Bart., Drakelow

Hall. Second, the Countess of Chesterfield. Highly Commended, the Countess of Chesterfield; J. Tomlinson, Southwood.

DORKING (White).—First, J. Faulkner, Bretby Farm. Second, J. Choyce, Harris Bridge, near Atherstone.

COCHIN-CHINA (Coloured).—First, J. Choyce, Harris Bridge, near Atherstone. Second, Capt. Buckley, Desford.

COCHIN-CHINA (White).—Prizes withheld.

GAME (White, Piles, and Light Colours).—First, Miss S. Alkin, Hartshill. Second, J. G. Ayre, Coleorton. Highly Commended, J. Wright, Shelbrook, Ashby-de-la-Zouch; J. G. Ayre; Miss S. Alkin. Commended, F. Walker.

GAME (Red and other Dark Colours).—First, J. M. Baker. Second, W. J. Everard, Bardon Hill House, near Ashby-de-la-Zouch. Highly Commended, J. G. Ayre, Coleorton; F. Walker. Commended, J. Wright; J. Choyce, Harris Bridge.

MALAY.—No entries for the Malays.

HAMBURGH (Golden-spangled and Pencilled).—First, T. Worthington, Bladon Wood, near Burton-on-Trent. Second, G. Woodcock. Highly Commended, Miss S. Alkin, Hartshill.

HAMBURGH (Silver-spangled and Pencilled).—First, Capt. Buckley. Second, E. Taverner, Hartshill, near Atherstone. Commended, Capt. Buckley, Desford.

POLAND.—First, J. Choyce, Harris Bridge. Second, Capt. Buckley, Desford.

BARN DOOR.—First, J. Faulkner, Bretby Farm. Second, J. Choyce, Harris Bridge.

FOR ANY OTHER DISTINCT BREED.—First, Capt. Buckley, Desford. (Second prize withheld.)

DUCKS (White Aylesbury).—First, J. Choyce. Second, Sir J. H. Crewe, Bart., Calke Abbey. Highly Commended, J. M. Baker, Dordon Hall, near Atherstone; Sir J. H. Crewe, Bart. Commended, E. Stevenson, Measham; Master J. C. Townshend.

DUCKS (any other variety).—First, Miss S. Perkins, Sutton Coldfield. Second, J. Jennens, Hamstead Park Farm. Highly Commended, C. Hopkins, Newton Regis; J. Ball, Measham; Miss S. Perkins. Commended, J. Choyce.

GEESE.—First, J. M. Baker, Dordon Hall, near Atherstone. Second, E. Mills, Shenstone. Highly Commended, J. Choyce, Harris Bridge. Commended, the Countess of Chesterfield.

TURKEYS.—First, the Countess of Chesterfield (Coloured). Second, J. W. Faux, Coleorton (Black Norfolk).

GUINEA FOWLS.—First, F. Walker, Ashby-de-la-Zouch. Second, W. Hollier, Walton-on-Trent. Highly Commended, E. Stevenson, Measham. Commended, W. Harrison, Bagworth Park.

BANTAMS.—First, Miss S. Perkins, Sutton Coldfield. Second, W. S. Ivens (Spangled). Commended, J. Choyce, Harris Bridge.

PIGEONS.—*Pouters*.—Prize, T. Clulee, Balsall Heath Road, Birmingham. Highly Commended, J. Choyce, Harris Bridge. *Carriers*.—Prize, W. Choyce, Sibson, near Atherstone. Highly Commended, T. Clulee, Birmingham. *Tumblers*.—Prize, J. Choyce. Highly Commended, W. Choyce, Sibson, near Atherstone; J. M. Baker; T. Clulee, Birmingham. *Fantails*.—Prize, J. Choyce, Harris Bridge. Highly Commended, T. Clulee, Birmingham. *Any other distinct variety*.—Prize, W. S. Ivens, Lutterworth. Prize, W. Choyce. Prize, J. Choyce, Harris Bridge. Prize, T. Clulee, Birmingham. Highly Commended, W. Choyce; J. Davys, Ashby-de-la-Zouch; J. Choyce. Commended, W. Choyce. (Extra prizes of 5s. each awarded beyond the general prize in this class, to four pens.)

RABBITS.—*For the heaviest weight*.—Prize, J. S. Spencer, Odstone Hall, near Atherstone. Highly Commended, W. Choyce, Sibson, near Atherstone. *For the greatest length of ear*.—Prize, W. Choyce, Sibson, near Atherstone. Highly Commended, E. Swinnerton, Newton Regis, near Tamworth. *For the best of any other kind*.—Prize, E. Swinnerton, Newton Regis, near Tamworth. Highly Commended, E. Mammatt, Ashby-de-la-Zouch.

BRAHMA POOTRAS.

HAVING read Mr. Paul Garbonati's remarks in THE COTTAGE GARDENER, page 362, September 13th, 1859, in reference to the Brahma Pootra controversy, I beg to say that I obtained two of the original pullets imported, and afterwards, through a friend, some eggs of Miss Watts, the lady named in that gentleman's note, and have since that time kept up the pure breed; consequently, I can fully corroborate his and the Rev. Mr. Thursby's statement, that the progeny produced from the original stock will produce alike almost to a feather, it having done so in my case for the last three years without the slightest variation.

I have successfully shown them in the West Riding of Yorkshire, having obtained prizes wherever shown, the last time being at the Pontefract Poultry Show, when the young birds, nine months old, took the first prize against the adults; and I have now from the young birds chickens nearly two months old, and they, like the whole parent stock, throw out no wrong feathers. See COTTAGE GARDENER, page 298, "Our Letter Box—Pontefract Poultry Show."

For domestic purposes I find them in every way equal to the *Dorking*, being well-suited for the table, the flesh very white and juicy; they are also very good layers and good mothers.

Whilst I am writing I may as well mention as a warning to poultry breeders never to use Irish moss. I have two yards. The poultry in the lower one had free access to meat in which Irish moss was mixed, when, to my surprise, they ceased laying. I could not attribute it to any other cause but the Irish moss. I then tried the effect upon my other hens by giving them the same mixture, when it was attended by similar results. I then discontinued it in both yards, when they recommenced laying in about four days. I shall be glad for any remarks which your correspondents may favour me with on the subject.—LIONEL J. BROOK, J.P., Gillygate, Pontefract.

NOTES ON THE CRYSTAL PALACE POULTRY SHOW.

I PERCEIVE you have already given two descriptions of the poultry at the Crystal Palace, so I shall not dwell long on that part of the Show; but as but little has been said on the Pigeons, I beg to offer a few observations. What struck me among the fowls was, first, the Spanish. Class II. (pen 22), for cock and one pullet, the Judges had highly commended two cocks. The one representing a pullet was a sickly bird, the comb and gills being very slightly developed; but the curved tail-coverts and fringed saddle proclaimed his sex. Class III.—*Spanish* cocks of the year, pen 24 had a very wrinkled face, very white; but he was not noticed by the Judges. Was he then considered too old? for it seemed to me almost impossible for a chick only thirty weeks of age to be so wrinkled. I guess there was some mistake there.

White *Dorkings*, I thought, suffered in shape, owing to too much stress being laid on size.

Buff *Shanghais* were very fine, but every cockerel had a mealy tinge on the wings; and one of the pullets in 116, second prize, had a wavy comb, partially cut off. Pen 120 contained two Silver-cinnamon pullets, with a Buff cock, consequently did not match. In the class for Brown and Partridge-feathered, all the hens were Grouse-coloured—not one Partridge-feathered hen could I see. In pen 141 was a very beautifully-marked pullet. Pen 134 were very dark, the pullets almost gipsy, the cockerel seemed crossed with black. If this fashion continue of showing Black-breasted cocks with Grouse hens instead of Partridge hens, exhibitors had better keep two varieties to breed from.

The *Brahmas* are still diversified about comb.

Duckwing *Game*.—The first prize cock in pen 217 was in beautiful condition and a perfect model, but his colour was bad, the red on the back showed the cross with the Reds. This fault was too general. Pen 220 was the best coloured bird as a Duckwing, free from red, and equally black on the breast. Pens 216 and 223 were also nearly free from red, and had good black breasts. Golden-pencilled, pen 243, the first-prize hens were not well marked, breasts and rumps were horseshoe-marked. Pen 252 were beautifully marked. The so-called Golden-spangled were all Moonies. The Silver-spangled were all Creoles, except that they had a slight admixture, which gave black spots on the hens' hackles. Black with white crest very good, but would do better with less black in front of their topknots. The Golden were better and more regular as to shape and colour of crests, but their bodies would not bear inspection.

Polish cocks, pen 324, a very mougrel-looking bird.

Malays all good. Pen 325 were a beautiful white.

Andalusians have improved; they have lost the red and become whole-coloured. Now they want more perfect faces.

Bantams.—The Silver-laced seem lost: what are exhibited as such are only light Golds. First-prize White were feather-legged and rose-combed. Rather large birds.

Game Dwarfs are improving very much; some are really miniature *Game* fowls. Very pretty Black-breasted Reds with yellow legs, and a pen of good, coloured Duckwings. The cock nearly clear from red.

The *Aylesbury* drake in pen 396 was hatched so early that he had forgotten how old he was, and had actually moulted his wings, thinking he was in his second autumn. Why on earth were those deformed-winged Ducks in pen 415 exhibited, much less commended?

There were a curious pair of knob, or horned, *Geese* exhibited; and a good pair of Japan Silky fowls.

And now to the *Pigeons*. The *Powters* did not show to advantage, as they were not supplied with blocks to stand on. Pen

457 was a nice upright bird. Pen 451 and some others were so heavily feathered on the feet, or "rushed," that one might have thought they were *Trumpeters*, and not the dandified *Powters*. Pen 452 ought to have been at the infirmary, not at the Show. *Carriers* were not very first-rate, and a great many of the pens were empty. Almond *Tumblers* few and nothing striking. First prize withheld. *Dragoons* were too good. They would have taken the shine out of many of the *Carriers*, exemplifying the folly of the class—where does the *Dragoon* end, and the *Carrier* begin? Pen 517 were beautiful *Yellows*. Short-faced *Tumblers* were few; three entries of Black-mottled, one of Red, and two of Yellow, so that Red took a prize without competition. Likewise in *Baldheads*, only four entries for five prizes. I think it would be far better to have one good prize, and let all the *Baldheads* compete in one class. Beards were much the same—seven entries for five prizes. Whole-coloured the same. Pen 513, *Silvers*, looked distantly related to *Owls*. *Jacobins* very coarse and inferior. *Owls* good in colour, but rather large. Pen 565, a pair of Mealy entered as Silver. Pen 571, *Yellow Owls*, looked like a cross with *Barbs*. *Nuns* were pretty; four pairs Black-headed, two pairs Red-headed, and one pair Yellow-headed. *Turbits* are pretty *Pigeons*, and these were very well as to feather; but they were not good either in head or frill. Pen 598, *White Turbits*, had a strong dash of Barb. *Fantails* and *Barbs* were the gems of the Show. They were very good in Black, Blue, and *White Fantails*; Black, White, Yellow, and Red *Barbs*. *Magpies* nothing particular, except that pen 633 had got turned crowns. *Trumpeters*: there was one good pair of Black-mottles, but they were generally defective in moustache. There were some very fine *Runts* of curious colours; mostly of the Italian varieties. In the extra class I noticed a pair of *Frill-backs*, a pair of feather-footed Black *Starling-breasts*, and Pen 661, a pair of feather-footed *Shields*. Here, too, were four pairs of *Magpies*. With the exception of *Fantails* and *Barbs*, the show of *Pigeons* I consider indifferent.

Rabbits were, however, very superior. There were eighty-three entries. Pen 669, Black and White Buck, first prize for longest ears, was a very handsome fellow. Black and White, Yellow and White, *Tortoiseshell*, and Blue and White, were well represented, and all contained excellent animals. The class for foreign *Rabbits* was occupied by other English breeds. Seven Silver-haired Blacks, and two White *Rabbits* with black points, which last were misnamed *Crimean*. Some of the Silver-haired *Rabbits* were very beautiful, all showed an affinity to the wild breed.—B. P. BRENT.

OUR LETTER BOX.

WORCESTER POULTRY SHOW.—Messrs. Kerr and Co., proprietors of the Worcester Royal Porcelain Works, have most liberally added to Class 4, for the best pen of Coloured *Dorkings*, a valuable Porcelain Vase. For this prize the entries will be kept open until the 29th instant.

HACKLE OF SILVER-SPANGLED HAMBURGHS (A Constant Subscriber).—A white hackle is a serious, almost a capital, defect in a Silver-spangled *Hamburgh* hen. It should not be spangled, but striped with black. Choose striped hackles, firm comb, white deaf ear, clear white tail tipped with black, also well-marked wings.

UNITING BEES (Alex. Scott).—It can scarcely be expected that in every instance complete success should follow the operation of making autumnal unions of bee stocks; and amongst aparians a diversity of opinion prevails as to the best mode of proceeding. The case of partial failure is no argument against the attempt to strengthen such hives as, unassisted, might hardly be expected to stand through the winter and a long cold spring. The driving plan is not always so successful where the population is small, and, under any system, a portion of bees will remain behind, to be removed as best you can. Still we think the amount of loss ought not to be placed against the certain advantages arising from a well-stocked hive in autumn, no matter what kind of hive it may be. It ought, moreover, to be borne in mind, that the usual alternative is the suffocation of the bees by brimstone, involving in a common and wanton destruction old and young, and the sacrifice of a number of labourers of great importance in early spring.

LONDON MARKETS.—SEPTEMBER 26.

POULTRY.

There is a complete absence of demand, and a good supply of everything. *Partridges* are very abundant, but the majority are old birds. *Grouse* remain scarce.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls.....	3	6	to	4	0
Smaller ditto.....	2	6	to	3	0
Chickens.....	1	9	to	2	0
Geese.....	5	6	to	6	0
Ducks.....	2	6	to	3	0
Partridges.....	0	3	to	0	9
Grouse.....	2	9	to	3	3
Pigeons.....	0	7	to	0	8
Rabbits.....	1	4	to	1	5
Wild ditto.....	0	8	to	0	9





